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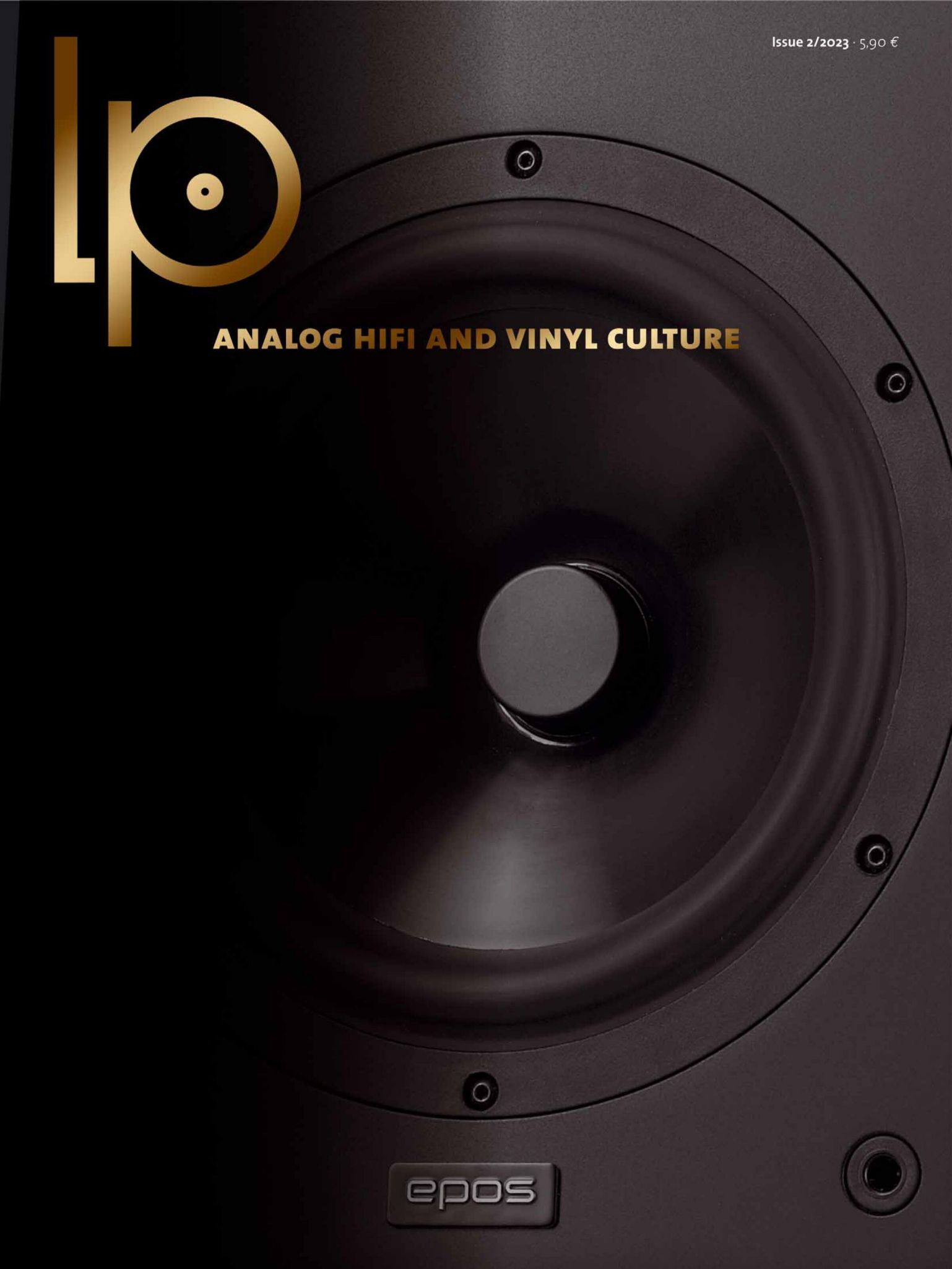
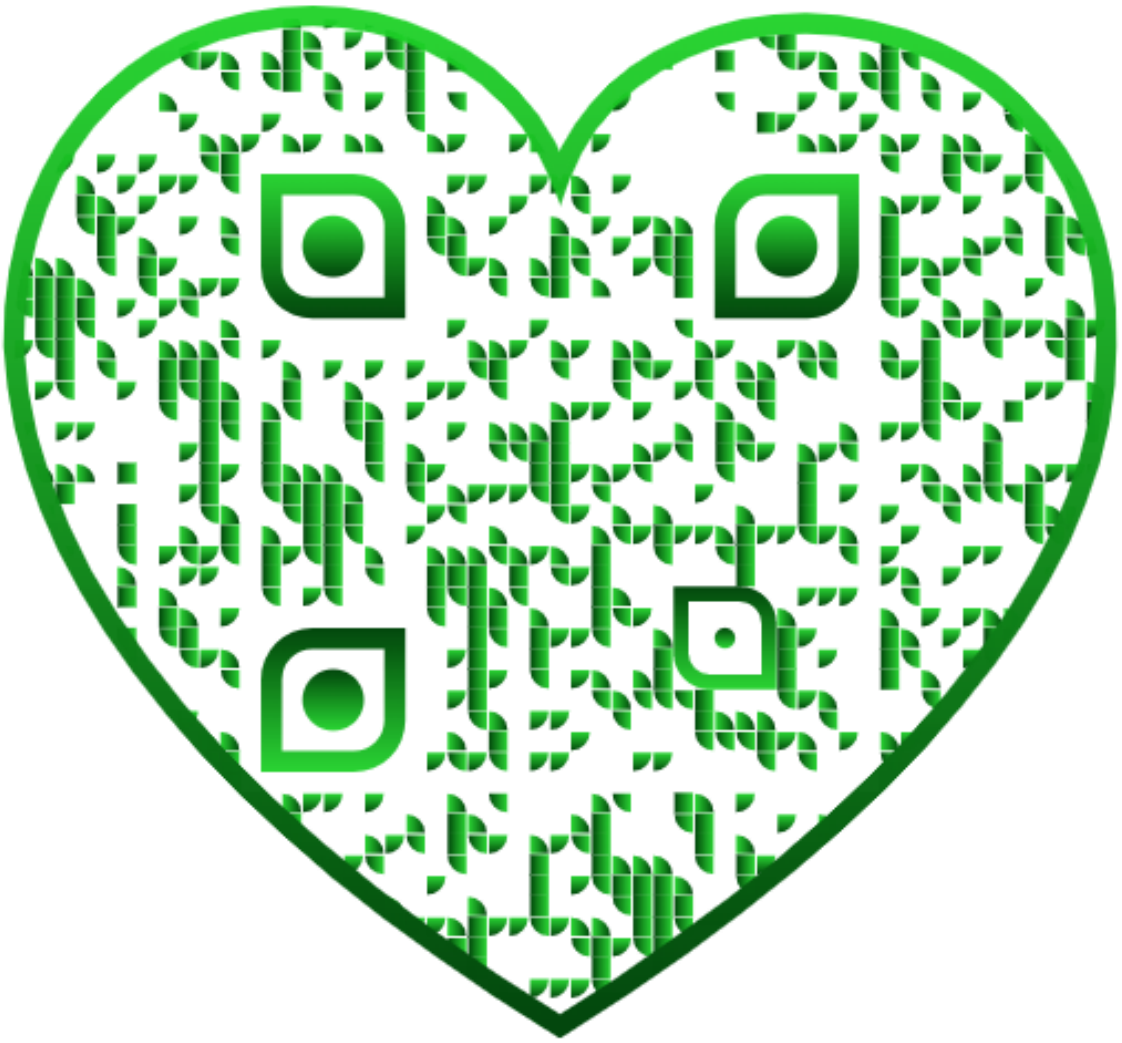
ANALOG HIFI AND VINYL CULTURE





Die Oberklasse

Disco-Antistat Ultrasonic® made in Germany

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modern · automatisch · elektronisch · revolutionär

Jetzt scannen und Händler
in Ihrer Nähe finden.

knosti®

www.schallplatten-reinigen.de

High End 2023

Let's talk about the High End. That show of audio superlatives that is both fascinating and terrifying at the same time, which takes place every spring in Munich's MOC exhibition centre. So also this May. And once again, the world's leading event of its kind has broken all visitor records, which is not really surprising: While the international audience was still quite sparsely represented last year, immediately after the Corona pandemic, Asian and American visitors were noticeably numerous this year. Nice for the industry - but also an indication of what the High End 2023 actually was: primarily a B2B event where the „normal" audience was not the main target group. This was already evident from the fact that the trade fair was only open to non-professionals on two days this year, while trade visitors were allowed to hire themselves out on the exhibition grounds for four days.

In any case, there was enough to see and hear, more than 500 manufacturers competed for the attention of the visitors. In terms of products, there was good news as well as bad news. We are pleased that the vinyl record has become such a natural part of high fidelity as it has not been for decades. The number of providers active in this sector is still increasing, and the associated diversity is definitely to be welcomed. The other side of the coin is the average price level of what is presented in Munich. Things are still moving in a direction that is only of interest to owners of penthouses in Kuala Lumpur and oil wells in Abu Dhabi, but not to ordinary hobbyists. In the atriums of the MOC in particular there was hardly a system to admire whose total price was well under half a million (insert your preferred currency here). Of course, I don't begrudge the manufacturers any business prospects, but as a normal user, this unbroken trend makes me a little sad. A small ray of hope: This year's High End has once again proven that setups with at least one zero less on the price tag could keep up with the completely different things in terms of sound.

Holger Barske, Editor in Chief

34
TRANS ROTOR

26
epos
epos

18

10
00:44

10 Record washing machine
Knosti Disco-Antistat Ultrasonic
Down to the bottom of the groove

18 Turntable Yuki AP-01
The Rule Breaker

26 Loudspeaker Epos ES14N
Epic

34 Turntable / Tonearm Transrotor
Massimo Nero TMD / TRA Studio 12"
The Perfect Foundation

42 Pickup Cartridge Miyajima Labs Carbon
Crosswise

48 Phono preamplifier
Clearaudio Balance Reference Phono
Compact, symmetrical, flawless

56 Turntable Luphonic H2
„H" is just a number

Categories

3 Editorial

4 Table Of Content

65 Preview / Imprint

Pro-Ject Tristand – premium rigid steel speaker stand

A speaker stand is often overlooked, but plays a significant role on the sound quality of the whole system. The Tristand provides a solid stand with its three height adjustable steel spikes which decouples the speaker from the floor. It makes it easy to level your speakers in the correct place and create the optimal listening position: the sweet spot.

It is also offered with spikes on the top plate to place your speaker on it. Spikes are designed to reduce the contact area to minimize the vibration interference, which allows speaker vibration to be diverted through the stand into the floor. By minimizing these vibrations, the bass response becomes cleaner and feels more controlled. It will also help to bring fine details to light, which furthermore improves the stereo image. If you don't want to place your speakers onto the spikes, we also offer microporous rubber pads as an alternative.

· Material:	Steel
· Base plate:	equilateral triangle with 360 mm side length
· Top plate:	150 x 142 mm
· Height:	700 mm
· Colour options:	white or black painted
· Weight:	5 kg per stand
· Price:	400 Euro incl. VAT

Contact: Audio Trade, Mülheim, Germany
Phone: +49 208 8826600
Internet: audiotra.de

Thorens TD 124 DD 140th Anniversary

What does a company with such a rich history give to itself and its fans for its 140th anniversary? Clearly, a turntable that one can still be proud of in 20, 30, or 50 years. Thorens has provided the limited TD 124 DD 140th Anniversary with the best prerequisites for this.

The worldwide success of the TD 124 DD did not prevent Thorens from continuing to research, listen, and experiment with this already highly perfected player. In the process, some truly effective upgrades were discovered that are now incorporated into the anniversary player, the TD 124 DD 140th Anniversary. One visible upgrade at first glance is the new two-layer platter, which connects the already heavy aluminum platter of the 124 DD with a five-millimeter-thick layer of solid copper. The sonic success of this measure is not solely due to the increased mass but also the interaction of two different materials whose resonances cancel each other out.

Less obvious than the sandwich platter but equally rewarding is the new wiring of the TP 124 tonearm. In the Anniversary version, high-purity silver wire connects the cartridge to the outputs. Thorens believes that the new wiring particularly makes a positive impact with low-output moving coil (MC) cartridges.

This system family also includes the third exclusive upgrade of the Anniversary: a special version of our SPU 124, produced by the Danish manufacturer Ortofon with coils made of pure silver. Thorens even convinced Ortofon to manufacture the classic cartridge housing from the old material, Bakelite, instead of the newer fiber-resin composite. Those who are eager to add one to their SPU collection must be disappointed: This limited-edition world-class MC cartridge is only available as a package with the TD 124 DD 140th Anniversary.

The eye also celebrates: The Anniversary Finish

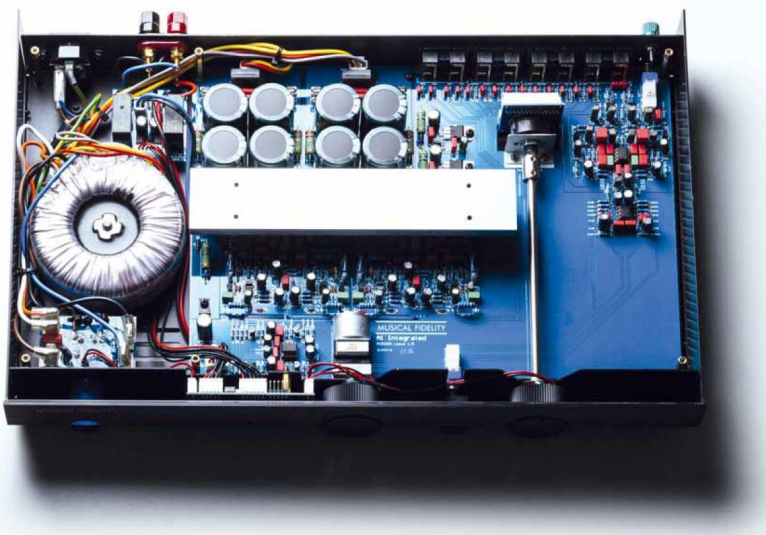
To match the occasion, Thorens has selected a timeless and beautiful real wood veneer that visually transforms the TD 124 DD 140th Anniversary into a precious rarity. For a harmonious overall impression, they have enhanced not only the plinth but also the armboard with high-gloss lacquered and hand-polished wood.

Thorens would love to build more, but they have decided to release only 140 units of the Anniversary model, it should remain truly special.

Price: 12,000 Euro incl. VAT
Contact: Thorens, Bergisch Gladbach, Germany
Phone: +49 2204 8677720
Internet: thorens.com

Musical Fidelity A1 - The return of a true hi-fi classic

When you think of design icons, what comes to mind are cars like the Porsche 911, the Ray-Ban Wayfarer glasses or the Bialetti espresso pot. In hi-fi, the Musical Fidelity A1has become one of the most classic designs – inside and out. First released back in the 90s, it quickly made waves for being an absolute beast when it came down to driving some of the most difficult speakers of that time, even though it was actually a rather low powered integrated amplifier. But: it was all done in pure Class A with excellent and expertly laid out discrete symmetrical circuitry topology and using only highest quality components. The A1 showed people that there was more to amplifiers than just high power. Based on its huge success, the A1 has gone through multiple reissues amd new versions over the years. Now for 2023, for the first time since its initial release we have actually kept all specifications, the appearance and circuits of the 1990's rendition for those who missed out the first time. With an updated transformer, power supplies and modern low noise components we've revitalized the formula and are proud to reintroduce the fresh original – three decades later.



Amplifier
- 25W Pure Class A power @ 8 Ohm
- Planar Audio transistors with 25A maximum output
- Output stage drives difficult speakers with no problems

Power Supply
- Updated transformer from shared (1988 original) to more efficient "dual mono split rail" windings
- Fully independent left and right power supplies for better power handling and stereo imaging
- Each power amplifier now has double supply capacity resulting in reduced ripple and noise and improved performance

Preamplifier
- High quality and updated ALPS RK series potentiometer as volume control
- Low noise TL071 JFET preamplifier circuitry, same as original (1988) design
- Fully smoothed and regulated supplies for lowest noise possible

Phono stage
- Discrete current-mode input stage for lowest noise amplification of MC as well as MM cartridges
- Low noise current to voltage converter for further amplification and RIAA equalisation
- Automatic input impedance matching (1K nominal) for MC selected along with with increased gain

Features
- Original (1988) A1 appearance and circuits with modern improvements
- Remote control added for volume control
- Modern updated low noise components
- Retail: 1600 Euro incl. VAT

Contact: Reichmann Audiosysteme, Niedereschach, Germany
Phone: +49 72281064
Internet: musicalfidelity.com

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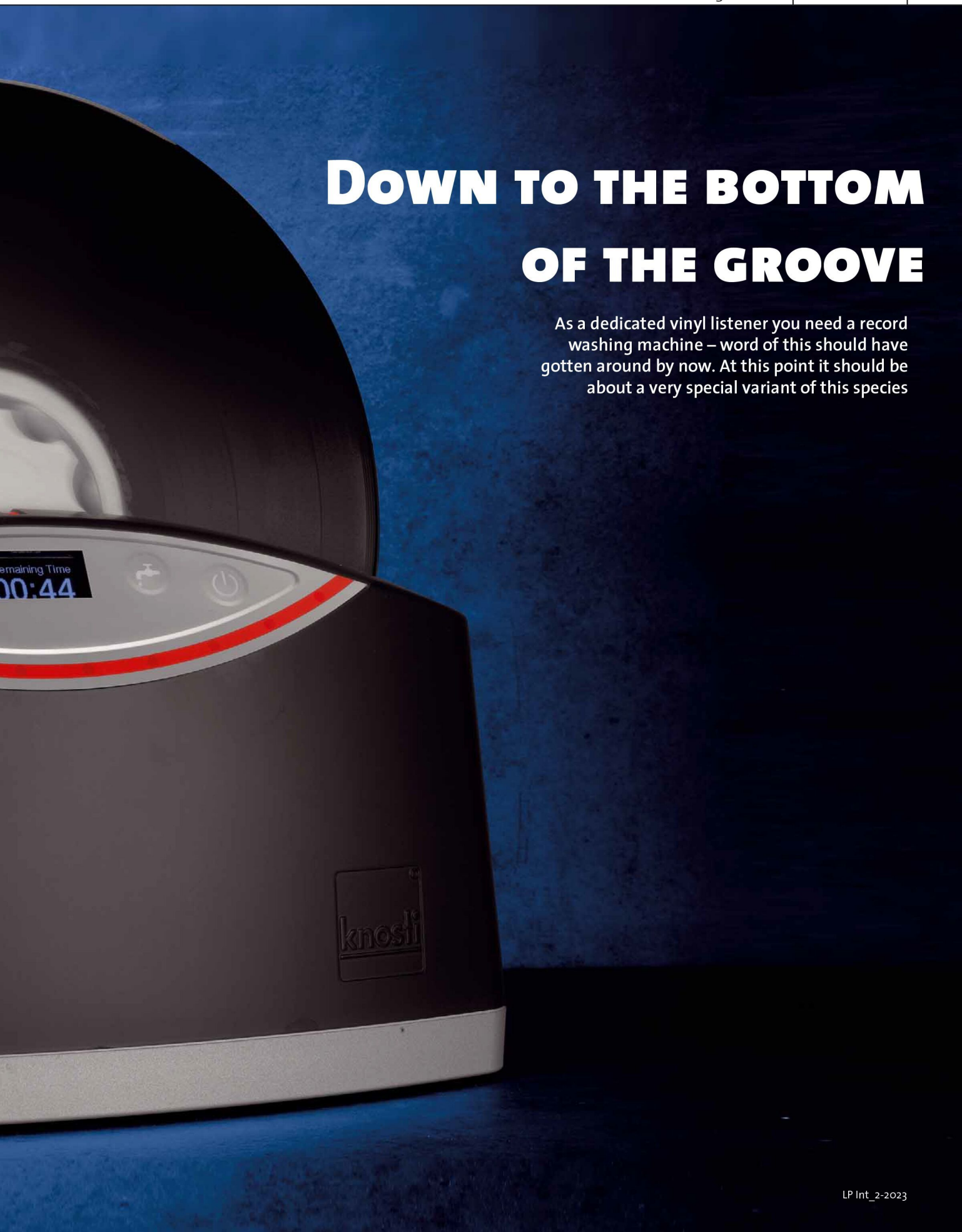
disco-antistat
ultrasonic



Down to the bottom of the groove

As a dedicated vinyl listener you need a record washing machine – word of this should have gotten around by now. At this point it should be about a very special variant of this species

The Disco-Antistat Ultrasonic is a well-designed device that takes up significantly less space than conventional record washing machines

For many years, the Knosti Disco-Antistat was the only affordable entry into the world of record cleaning. No wonder – that was a long time before the relevant specialists discovered the market for themselves with more or less fully automated and mechanized luxury equipment and offered equipment at corresponding prices. In fact, nowadays it's no problem at all to get a record completely clean and dry with a single press of a button, both sides at once. You have to accept – in most cases – a significant noise level and a not inconsiderable investment. With the first Knosti it was and is all a bit different. It essentially consists of a plastic container to be filled with washing liquid, into which the disc to be cleaned is hung. A set of built-in brushes mechanically remove contaminants while the disc is rotated by hand. The washing liquid ensures that the impurities are dissolved. When the panel is deemed clean, it is placed in a drying rack until the cleaning agent has evaporated. This has delivered decent results for decades, but of course the process still leaves room for

improvement in terms of effectiveness and comfort. That's why the manufacturer based in Burgheim, Upper Bavaria, added a key feature to its machine some time ago that is supposed to ensure noticeably better washing results: an ultrasonic cleaner. An ultrasonic transducer causes the cleaning medium to vibrate at high frequencies. This creates tiny so-called cavitation bubbles in the liquid, which when they collapse creates a negative pressure that tears dirt particles from neighboring surfaces. With the right dimensions, the process is completely harmless to the record and very effective. During the cleaning process with the Disco Antistat Ultrasonic, several things happen at the same time: An electric motor rotates the record, which is immersed in the cleaning medium as precisely as possible up to the exit groove. The goat hair brushes, already familiar from the original Knosti, ensure mechanical cleaning of the surface, while the liquid, which is made to oscillate using ultrasound, intensifies the cleaning process even further. During the process, the liquid is pumped through a filter that catches loose dirt particles. The cleaning process takes between one and two minutes, the value can be set with two buttons on the front of the device. In addition, there are two more buttons: The one on the far right turns the device on or off, but beware: you have to press it for around five seconds before the device shows a reac-

Teammates

· Turntable:
· TechDAS Air Force III / Reed 3p / DS Audio DS-003

Phono preamplifier:
· DIY

· Line preamplifier:
· NEM PRA-5

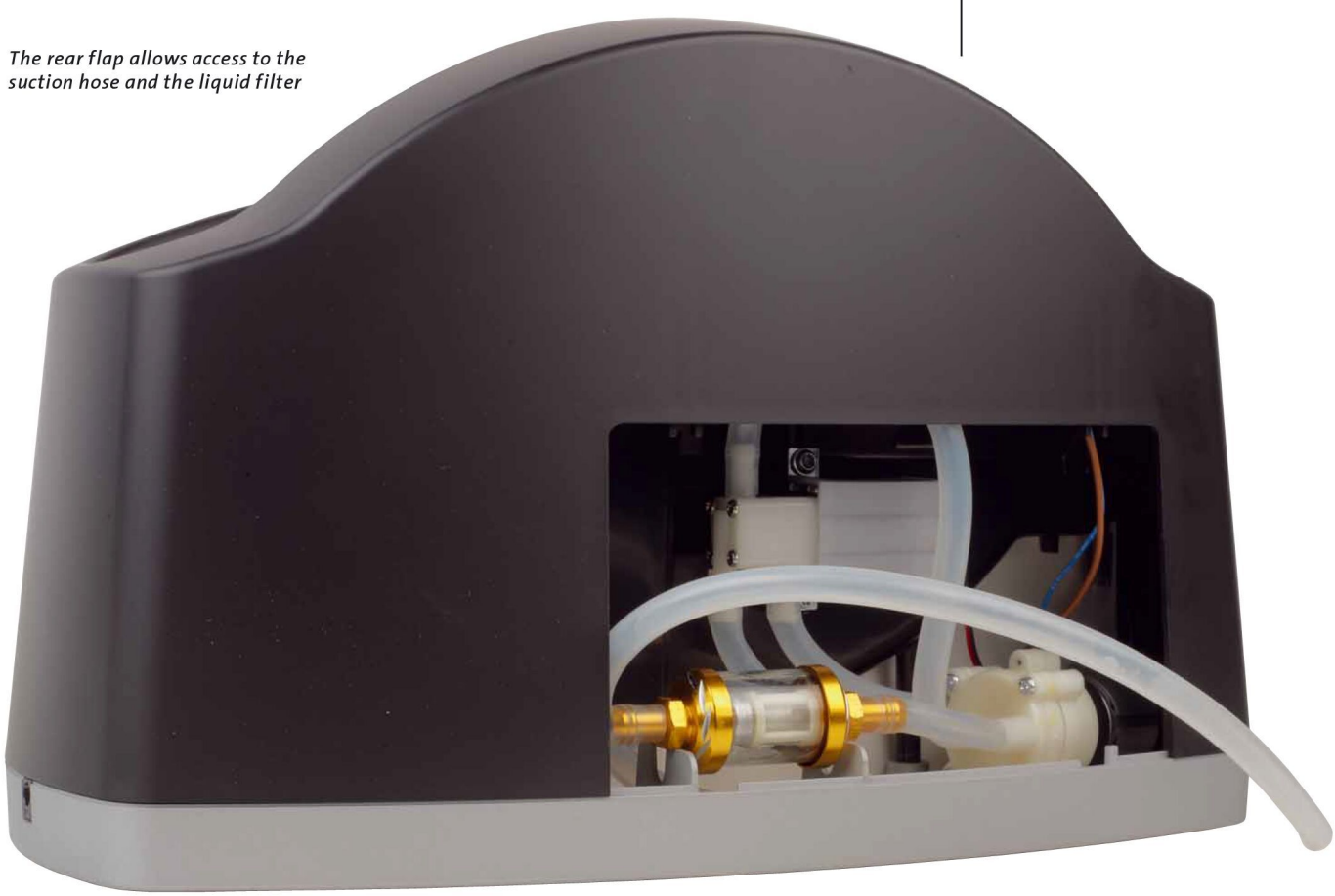
· Active Crossover:
· Urei 5325

Power Amplifiers:
· Manley Mahi
· Yamaha P-2200

Speakers:
· JBL 4355

Competitors

Record cleaning machine:
· Clearaudio Double Matrix Professional Sonic



The rear flap allows access to the suction hose and the liquid filter

The two components of the cleaning agent and a mixing bottle are included in the scope of delivery

tion. The last control element in the bunch is used to remove the cleaning liquid. It shouldn't remain in the device after use, because then it would get dirty due to environmental influences on the one hand and simply evaporate on the other. What you must never do is empty the device by tipping it out. There is a risk that liquid could get inside the device. Rather, it is necessary to open the rear service flap, remove the drain hose and hang it in a suitable container. Then you have to press the pump button and the pumping process begins. This is also controlled by a timer and runs for so long that it is guaranteed that no significant amount of liquid remains in the device. You can then wipe the last residue of the cleaning medium out of the device with the enclosed foam brush. The procedure is not without a certain amount of effort and inevitably leads to the realization

The two brushes provide a basic cleaning of the record

that setting up and dismantling the device to wash a single disc is only worthwhile in exceptional cases – it makes sense to collect a few more discs for washing.

A mixture of highly distilled water and the cleaning concentrate Disco-Antistat Ultraclean specially developed for this application is used as the cleaning medium. A mixing bottle is included with the device, with which both components can be easily mixed in the correct ratio. The bottle also serves to store the liquid when the machine is not in use. The multi-part clamping device with which the records to be washed are hung in the device also deserves attention. A two-shell, sealed construction protects the record label from the cleaning fluid, and an integrated puck allows singles with a large center hole to be accommodated. Inserting the record in the machine with the holder screwed on is extremely easy: hook it in and turn it clockwise very slightly, then the lock engages. Taking it out is just as simple: A small anti-clockwise rotation releases the lock and you can remove the disc. And how does it all work in practice? Set up the device horizontally, connect the plug-in power supply and connect to the mains, fill in the washing liquid to just below the maximum level mark, screw the record and holder together and insert them into the device, switch on the device. The washing process runs completely automatically, a row of ten LEDs serves as a progress indicator. The washing process itself is pleasantly quiet, the ultrasonic generation makes considerably less noise than the cleaning devices that work according to the same process that I know otherwise. When the one or two minutes are up, the

The display provides information about the most important parameters of the washing process

freshly washed record goes into the drying stand provided. Within a few minutes, the last remnants of the liquid drained away. This doesn't work completely without residue. If you like, you can help a little with a microfiber cloth at the „drip point". The only thing that would make the Disco-Antistat Ultrasonic even better is a suction device, as we know it from conventional record washing machines. Without a doubt, however, this would make the construction considerably more complex and expensive. However, the washing results with the ultrasonic machine are beyond any doubt. The device is ready to deal with everyday deposits within a minute, it solves most problems with heavily soiled flea market discs within two minutes to your complete satisfaction. It also brings records that were previously played wet back into top form: Two two-minute runs can even handle wet playback liquid that has dried up for decades. In terms of sound, the procedure is immediately noticeable, even with new records: It is always amazing how much sound-damaging dirt is stuck in the groove even on brand-new records. Your ears will thank you for using the Disco-Antistat Ultrasonic with increased dynamics and a noticeably reduced background noise level. Of course I tried to compare the effectiveness of the new Knosti Disco-Antstat Ultrasonic with that of a modern conventional record washing machine. For this purpose I cleaned a few records washed with it with Clearaudio's Double Matrix Professional Sonic afterwards, but I could hardly find any additional improvement. Incidentally, the same applies if you carry out the procedure the other way around, meaning: prewash with the Clearaudio and then try the Knosti. From which one can conclude that both devices deliver a washing result that can practically no longer be improved.

Holger Barske

The freshly washed records wait in the drying rack for the cleaning agent residue to evaporate

Knosti Disco-Antistat Ultrasonic

· Price per pair	1,250 Euro
· Distribution	Knosti GmbH, Burgheim, Germany
· Phone	+49 8432 94870
· Internet	www.knosti.de
· Warranty	2 years
· Dimensions (W x H x D)	360 x 235 x 180 mm
· Weight	approx. 4 kg

Knosti
Disco-Antistat
Ultrasonic

International 2/23

» With the Disco-Antistat Ultrasonic, Knosti leaves the field of inexpensive entry-level solutions for record washing and supplies a mature professional solution that can deal with any type of dirt.

The Rule Breaker

It was meant as a mere fun project, to begin with, entirely without commercial ambitions. But the fun was over when the first pictures of this turntable appeared on the web.

The signal connection is made via sockets in one of the „towers“ at the corners of the drive

Background

No, they don‘t have to build record players. Why should they? The business with mechanical precision components is booming and has a long tradition: Yuki Precision has been in business since 1961 and is in an excellent position. They even manufacture parts for tourbillons used in the Swiss watch industry – not bad references.

Jun Nagamatsu has headed Yuki Precision‘s research department since 2014. And perhaps it was inevitable that the self-confessed audiophile would combine his professional and private passions at some point: In 2017, the starting shot was fired for the ambitious turntable/tonearm project, which is now ready for series production and has found its way to Europe. I am particularly pleased to have been among the first to get my hands on such a device for review.

The manufacturer exercises restraint in disclosing technical details about the AP-01. Still, one thing is clear: Nagamatsu-San and his team have left the familiar territory in many places and even opted for solutions that directly contradict time-honored principles of turntable construction.

The design of the AP-01 may certainly be considered unique

The adjustment of the non-bent arm goes easily with the enclosed template

Teammates

Cartridges:
DS Audio DS003
Denon DL-103

Phono preamplifiers:
DIY-Entzerrer für DS Audio
Clearaudio Balance Reference

Preamplifiers:
NEM PRA-5

Power amplifiers:
Manley Mahi

Loudspeakers:
Drei-Wege-DIY Focal/JBL

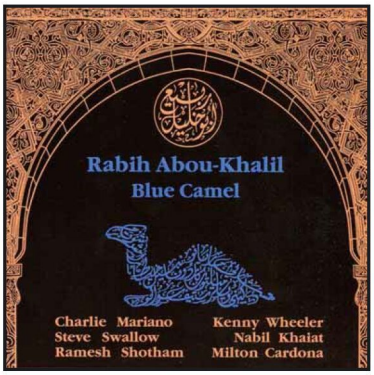
Competitors

Turntable:
TechDAS Air Force III / Reed 1X / 3P

Appearance

The design of the AP-01 may be considered unique – probably that's one reason why the record-loving world has reacted so strongly to the device. But be warned: The AP-01 is not available for pocket money. As things stand, you'll have to shell out EUR 44,500 for it – until the end of the year, you'll get the highly recommended stabilizing ring and the support weight for free. The Yuki is not a very dominant appearance, even with its stately width of 56 centimeters; it appears pleasantly filigree despite all the metalwork. It doesn't have a proper chassis, and the platter is far from the usual brute cylinders in this price range. The 20-millimeter-thick aluminum platter weighs a discreet four kilograms and – this is where the first peculiarity comes into play – rings like the proverbial bell when excited. Nevertheless, experiments with damping disc mats showed no noteworthy sound improvements. Perfect silence prevails when the record is fixed to the platter with said stabilizing ring. When used, the reproduction quality also makes noticeable progress, the events gain in vividness, the focus increases, and the spatial impression becomes more realistic. The same applies to the stainless-steel support weight, although not to the same extent. Even if it's a bit annoying – the sound-wise gains with both components are so significant that I've always used them and swallowed the toad that I have to switch off the motor every time to change or turn over the record.

This technique ensures that the idler pulley can follow any movements of the cup bearing



Rabih Abou-Khalil – Blue Camel

What we played

Rabih Abou-Khalil
Blue Camel

Steely Dan
Gold

Rainbow
On Stage

Esbjörn Svensson
Solo

Platter and bearing

The Yuki is rather tall, primarily due to its platter bearing. Its axis is unusually long, which is conducive to stability. In the vertical direction, the repulsive fields of two ring magnets support the bearing, but a classic ball or something similar seems to be still present. There's a conventional bearing in the horizontal direction, but I couldn't find out more about it. The surprising aspect in this context is: The bearing unit is softly suspended. In other words, you can move the platter in the horizontal plane, not by much, but by a millimeter or two. The manufacturer argues this with the decoupling effect from the rest of the driver. In this way, the designers break another iron rule of turntable construction, according to which the distance between the platter axis and the tonearm base should be as immovably fixed as possible. Rega, for example, even stabilizes this axis with extra metal bridges. With the Yuki, the gyroscopic forces of the spinning platter should ensure that nothing wobbles.

Drive

A very thin string of two twisted and knotted Kevlar fibers drives the AP-01 platter. The motor resides in a compartment on the left; on the other side sits a pulley around which the string runs, too. This results in a force-neutral motor – without the pulley, the string would constantly pull the platter to the left. And here's the kicker: The motor and the idler pulley are mounted on two rods below the drive base plate and held in the neutral position by springs. This means that the entire drive train can follow any movement of the platter axis. Those that ideally do not occur at all - see above. This is undoubtedly a very extravagant and tricky decoupling of the motor and bearing from the rest of the turntable. The motor is pleasantly quiet, and the speed is controlled electronically. The necessary electronics are located in the only halfway closed compartment on the left side of the device. There, a very finely crafted metal lever allows the selection of the three possible plate speeds, and three de-

Vertically, the tone arm is guided by knife bearings

The appealing control panel with individually adjustable speeds

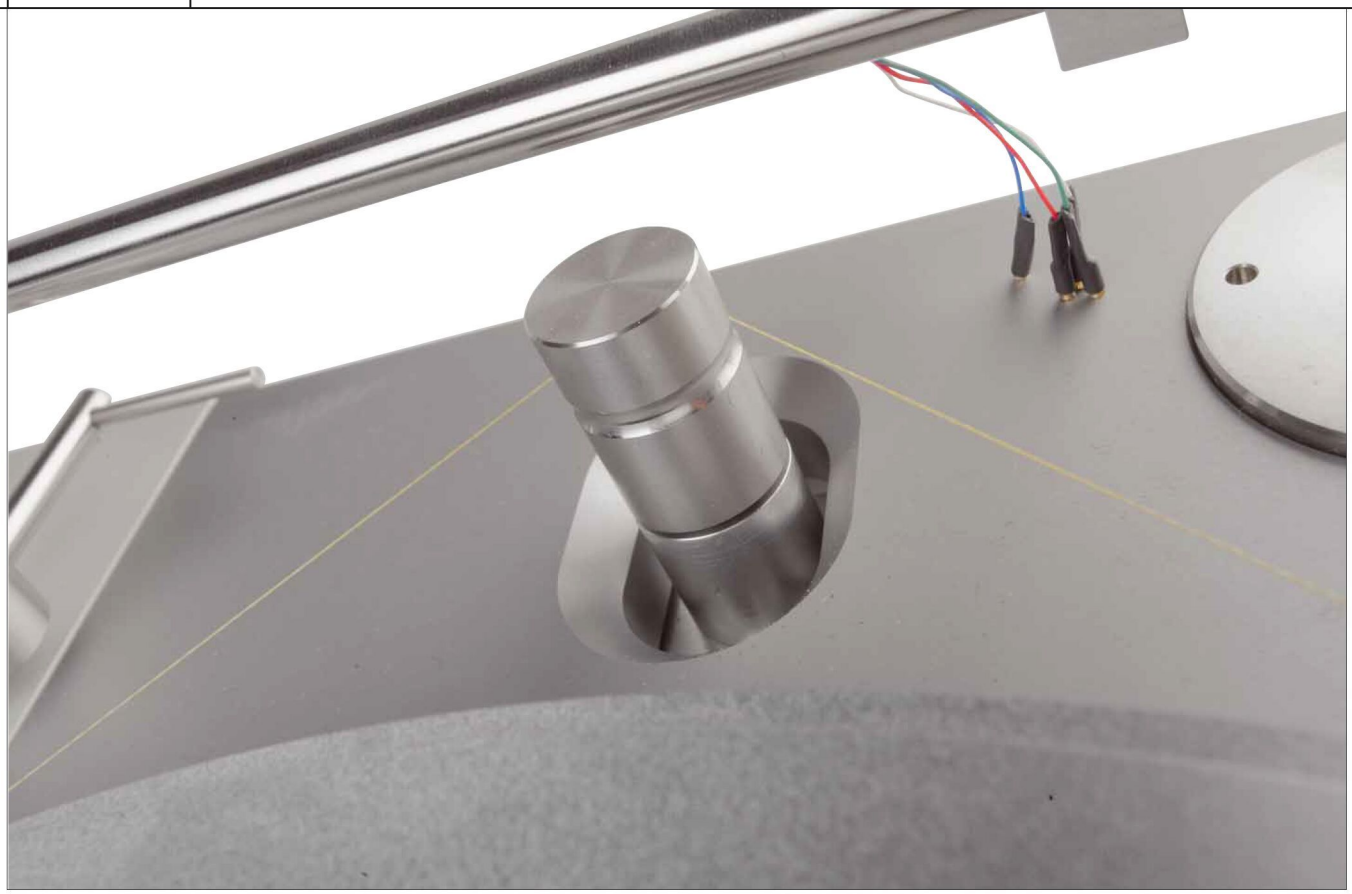
licately designed knobs enable individual adjustment of all three speeds – another metal cylinder further to the left switches the motor on and off in proper style. The power input socket is located on the left side wall of the drive housing, which I don't find very convenient: for a halfway space-saving power connection, you need a cable with a suitably angled IEC connector - have fun finding a suitable cable.

Tonearm

Let's move on to the AP-01's next peculiarity: its tonearm. It is straight; in other words, it has no offset whatsoever. Viv Lab's tonearms have been proving for years that this can work in principle, and we don't even want to discuss the tracking error at this point – the manufacturer says it just sounds better that way. The fact that such an arm is easier to manufacture and balance is an additional advantage.

Next point: effective mass: The Yuki arm's tube is a solid stainless-steel rod – with the corresponding consequences. If I were to estimate an effective mass (there is no data on this), I would place it in the region of 100-200 grams. The manufacturer says accordingly that the arm is intended for use with medium-hard to hard cartridges.

The lack of any offset on the tonearm looks unusual at first but works in practice



The idler pulley is positioned exactly opposite the motor pulley and ensures freedom from forces at the platter bearing

However, even with the hardest cartridge on the market, there's no chance of getting the arm/system resonance into the recommended range of 8 – 12 Hertz. In practice, this circumstance has surprisingly little effect. It is only noticeable that even slightly off-centered plates sometimes cause quite violent excursions of the bass diaphragm - exactly once per revolution. This is usually not a problem and can be controlled with a phono preamp with a subsonic filter in case of doubt. The scope of delivery also includes two counterweights, which differ pretty little in their mass but should be able to balance most common cartridges.

Sound

The tonearm's quirks made me sweat a bit after installing the DS Audio DS-003 – I wasn't sure if the exotic design could guide the cartridge through the groove properly. After a few record sides, however, the concerns dissipated. I can't detect anything of even locally increased scanning distortions. The scanning capability of the combination is in the region of 80 micrometers, which also fits. Sound-wise, the combination knows how to impress: It sounds incredibly light-footed, detailed, and spacious. Rabih Abou-Khalil's Egyptian lute sounds tender and delicate, its tone floating almost weightlessly in space. The accompanying instruments ground the action perfectly, and it sounds lively and committed – great class! Steely Dan's „Hey Nineteen" is just as vibrant and rhythmically well-accentuated. Following a recommendation by the manufacturer, I mounted a plain Denon DL-103 afterward, which should be much better suited for the heavy arm, at least on paper. In terms of punch, the classic cartridge comes surprisingly close to the DS Audio here, but it doesn't have the low end and the drawing in the bass. Overall, though, the DL-103 sounds very balanced and coherent here, and I'm pretty sure it was used in the „voicing" of the unit. Overall, the Yuki clearly shows that concepts beyond the textbook conventions can function excellently - it's just a pity that this experience will be reserved for decidedly well-heeled prospective buyers.

Holger Barske

Yuki AP-01

- Price 44,000 Euro
- Distribution Axiss Europe, Hofheim, Germany
- Phone +49 234 3254190
- Internet axiss-europe.de
- Warranty 2 years
- Dimensions (W x H x D) 560 x 213 x 352 mm
- Weight approx. 27,5 kg

lp Yuki AP-01

International 2/23

» This Japanese gem may be one of the most accomplished debuts in hi-fi history. The AP-01 sounds outstandingly free, refined, and effortless.

epos

Epic

I've probably never gained as much insight into the professional development of a loudspeaker as in this case. Please forgive me if I lose a bit of critical distance to the Epos ES14N here and there.

Of course, the ES14N comes with baffle covers. However, the manufacturer recommends removing them when listening to music

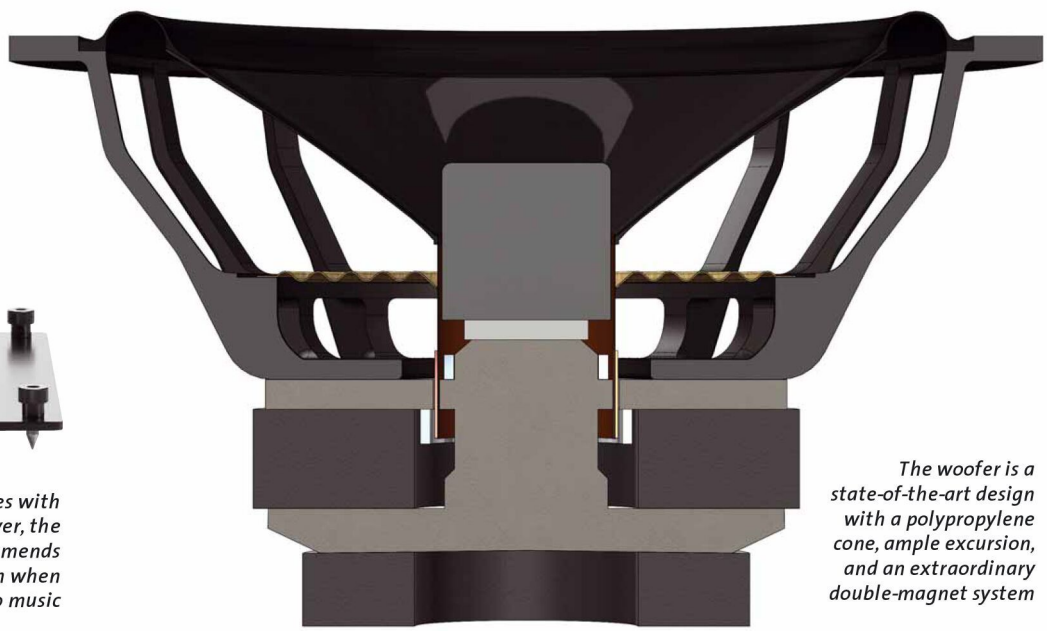
What I did not think: No matter with whom I talk about it – everyone has a story to tell on the subject of „Epos speakers." First and foremost, about the ES14 model, which certainly is the most famous design of the company's owner Robin Marshall. In the 1980s, his approaches were groundbreaking. He tried to build loudspeakers mechanically so „right" that he could get by with minimal filtering. The ES14 was a voluminous two-way „compact" speaker with a metal dome tweeter and a seven-inch bass-midrange driver. Even though it was a decidedly British phenomenon, it also found many enthusiasts in our country, hence the multitude of memories of this speaker. Epos was bought out in the late eighties and disappeared from the scene. In 2020, the well-known Essen-based loudspeaker professional Karl-Heinz Fink acquired the rights to the name and decided to fill the brand with life again.

The first result of his efforts is sensibly called ES14N and is a reinterpretation of Robin Marshall's ideas, which can now be purchased from EUR 4,000 per pair. Or for 4,600 if you add the highly recommended stands.

Since Epos – and thus Karl-Heinz Fink's company headquarters – is only a stone's throw away from Duisburg, I'm around frequently and get to see what's cooking in Fink's pots. I was there very early on the subject of the „ES14N" and accordingly got to hear a lot about its development. At the Munich High End show last year, I even put on some music at the demo of a zero-series epic. So: I know how they sound. And how the sound has changed throughout the development history and infinite iterations were necessary until the speaker reached where it is now.

Appearance

The ES14N doesn't deserve the term „compact speaker" any more than its forebear. It is a two-way construction with – you guessed it - a metal dome and a seven-inch woofer blessed with a decent volume. So many references to the legendary original could be made without problems. In terms of design, the ES14N is an all-around coherent affair. The gently backward sloping – basically black – front with the accomplished „kink" in the lower area makes the speaker appear modern and somewhat compact after all. The solid stand is screwed to the speaker, and I do not consider



The woofer is a state-of-the-art design with a polypropylene cone, ample excursion, and an extraordinary double-magnet system

it sensible to fall back on another make in this case, especially since the combination was tuned sound-wise during the development.

Housing

The housing of the 16-kilogram ES14N is made of double-layered MDF, with both layers glued together with a modern, highly dampening adhesive. In addition, various struts keep uncontrolled vibrations in check. The result is an extremely low-vibration cabinet with very little damping material. By the way, the continuous solid center column of the stand is constructed in the same way. The bass reflex system is coupled to the room via a rear reflex tube. Master Fink has much to say about the placement and design of reflex tubes, and there are unique features here as well: The tube, flared on both sides like a trumpet, has a series of circumferential holes in the center. Surprisingly, this does not affect the primary function at all but dampens the tube's natural resonances very effectively. This is just one of the many little tricks Fink integrates into its speakers. Hardly anyone else does this because the facilities in Essen for simulating and metrologically testing such things are only available in very few places worldwide.

By the way, the Epos is manufactured in China, which definitely doesn't have to be detrimental to the quality, as is evident here: If you maintain a good relationship with your suppliers and give them room to breathe in terms of costing, then the result will also work out. In any case, the matte white surface of our sample pair is flawless, as is the black textured lacquer front. The drivers are neatly flush with a small gap, so there's nothing to complain about here. Only the screw connection between the speaker and the stand does not inspire confidence – interestingly, this was also the case with Fink's high-end two-way „Kim," which sails under the „Fink Team" flag.

Drivers

The typical high-end loudspeaker designer usually scours the websites of the driver top dogs Scan Speak, Seas, SB-Acoustics, and Co. for the latest technology. At Fink, on the other hand, they think about what precisely the drivers need to be able to do for the project and start simulating voice coils and carriers, cones and surrounds, baskets and air gaps. For this, some people in Essen do nothing else all day, and they use highly specialized, ultra-powerful software tools for this purpose. If the results are deemed promising, prototypes are commissioned

Teammates

Turntable:
TechDAS Air Force III / Reed 3p

Phono preamplifier:
DS Audio

Cartridge:
DS Audio DS-003

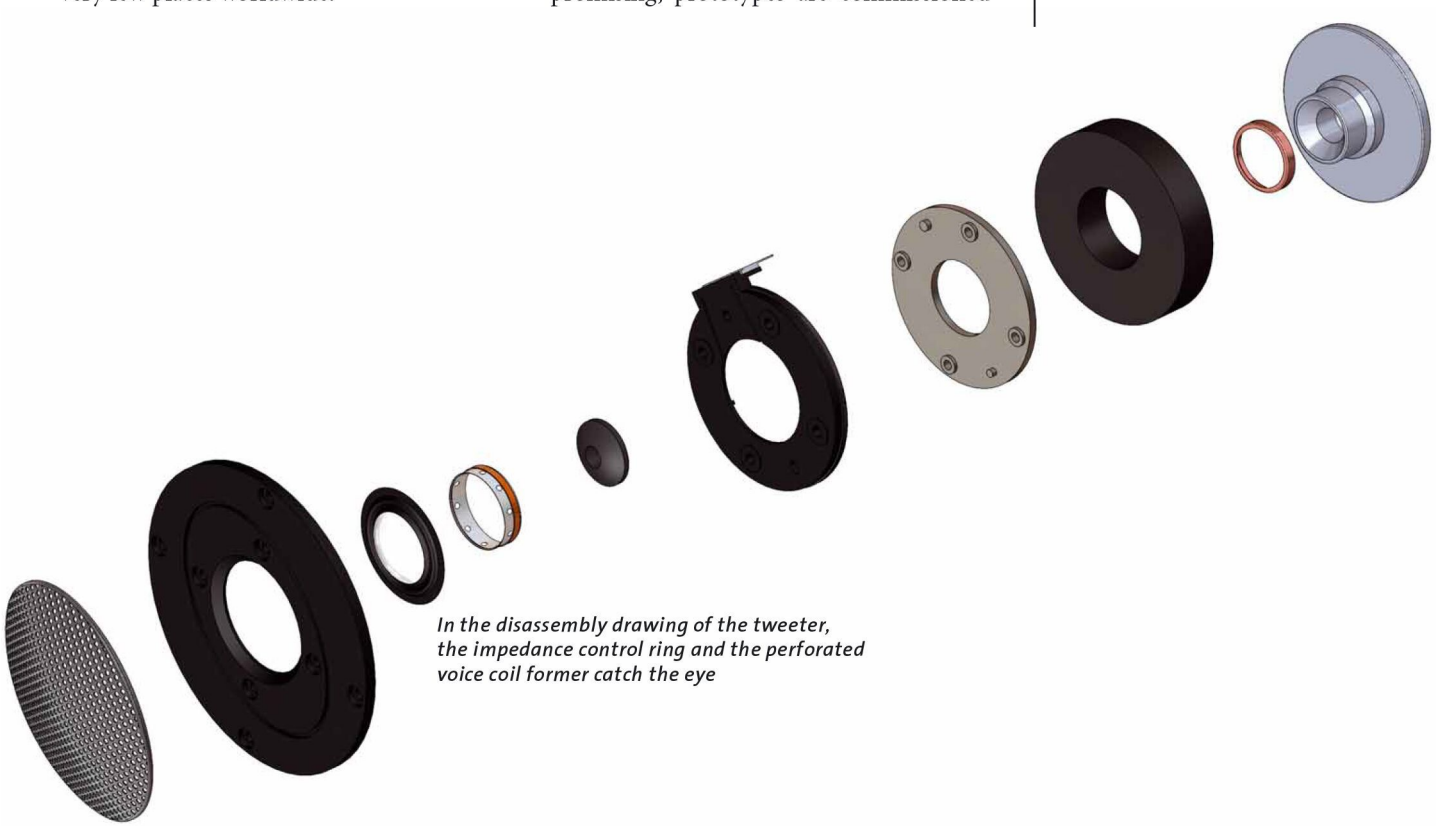
Preamplifier:
NEM PRA-5

Power amplifier:
Pure Dynamics Class-A Monos

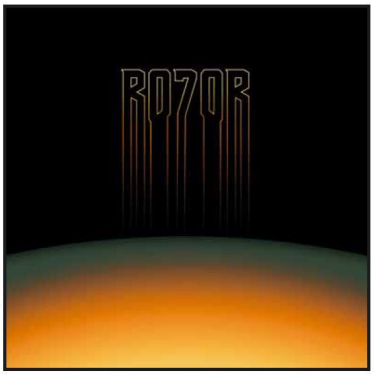
Integrated amplifiers:
Accuphase E-5000
Thivan Labs 811 Anniversary

Competitors

Loudspeakers:
Klang + Ton Nada
DIY Focal / JBL



In the disassembly drawing of the tweeter, the impedance control ring and the perforated voice coil former catch the eye



Rotor – 7

What we played

Rotor
7

Nina Simone
My Baby Just Cares For Me

Chick Corea
Return To Forever

Causa Sui
Szabodelico

in the Far East and measured after completion. The effort is great, especially since the number of prototypes can sometimes be quite considerable. However, this is the only way to generate solutions that are precisely right for the application.

In this case, it boils down to a bass-midrange driver with a polypropylene cone and a very specially shaped, particularly low-loss rubber surround, driven by a two-layer wound 36-millimeter voice coil.

The magnet's geometry has been optimized, and there's even a compensating magnet, which – to put it simply – linearizes the motor. Everything is mounted in a fiberglass-reinforced plastic basket. For the tweeter, the process is the same. I don't remember exactly how many different aluminum domes we listened to in Essen before the 28-millimeter version now installed got the go-ahead. One thing is sure: This incarnation no longer sounds like a metal dome. And I rarely say that because I'm sensitive about that.

Crossover

The crossover for the ES14N is not as simple as the filter of the original ES14. Simple first-order filters without extensive corrective measures can hardly be made without compromises, and Fink does not do that. The built-in crossover still passes for being flat, but it does afford a corrective element or two. For example, the tricky filter that excellently dampens the tweeter's resonance peak, which surprisingly only occurs at 30 kilohertz, without causing any damage in the listening area. And there are no cheap components here. The parts of the ES14N crossover come from the shelves with the tasty stuff of well-known suppliers at all critical points.

The cutaway model of the box reveals an extremely stable stiffened housing and a trickily ventilated reflex tube

On the back, the tiny but refined banana jacks for the connection catch the eye

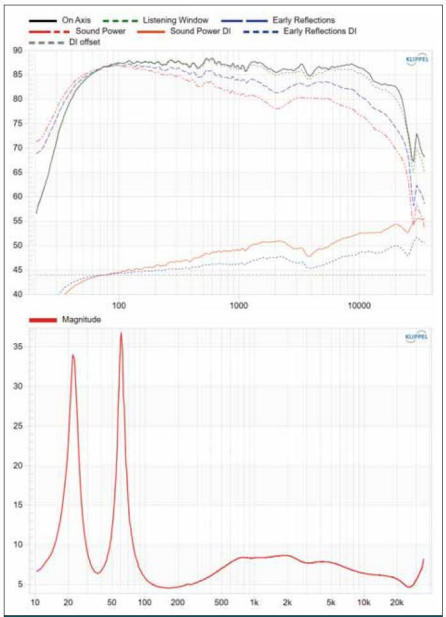
Sound

With an efficiency of about 87 decibels, a nominal impedance of about six ohms, and an uncritical impedance curve, the ES14N can handle a variety of power sources. A single-ended tube may not be the first choice, but a push-pull EL-34 should fit the bill. Or something small but good from the semiconductor camp. Like the excellent Pure Dynamics monos from the last issue, which I still haven't returned. What the Epos puts up with them regarding self-evidence and size is pretty sensational. In terms of fundamentals, this is the most impressive thing I've ever experienced from a „seven-inch+dome" combination. I have known for some time that the Epos should not be handled with velvet gloves. And so the brand new album of the Berlin stoner rock heroes Rotor wandered onto the platter in joyful anticipation. The ES14N does

The black front is standard, and the cabinet comes in a few different colors and veneers

FINK team
BORG
EPISODE 2
FINKTEAM.COM
Couldn't be better?
WELL, WE MASTERED IT.
FINKTEAM, MAXSTRASSE 75, 45127 ESSEN, GERMANY, TEL: +49 (0)201/236412, INFO@FINKTEAM.COM, WWW.FINKTEAM.COM

It is not really small but looks perfectly proportioned on the in-house stand



Measurements

Lab commentary

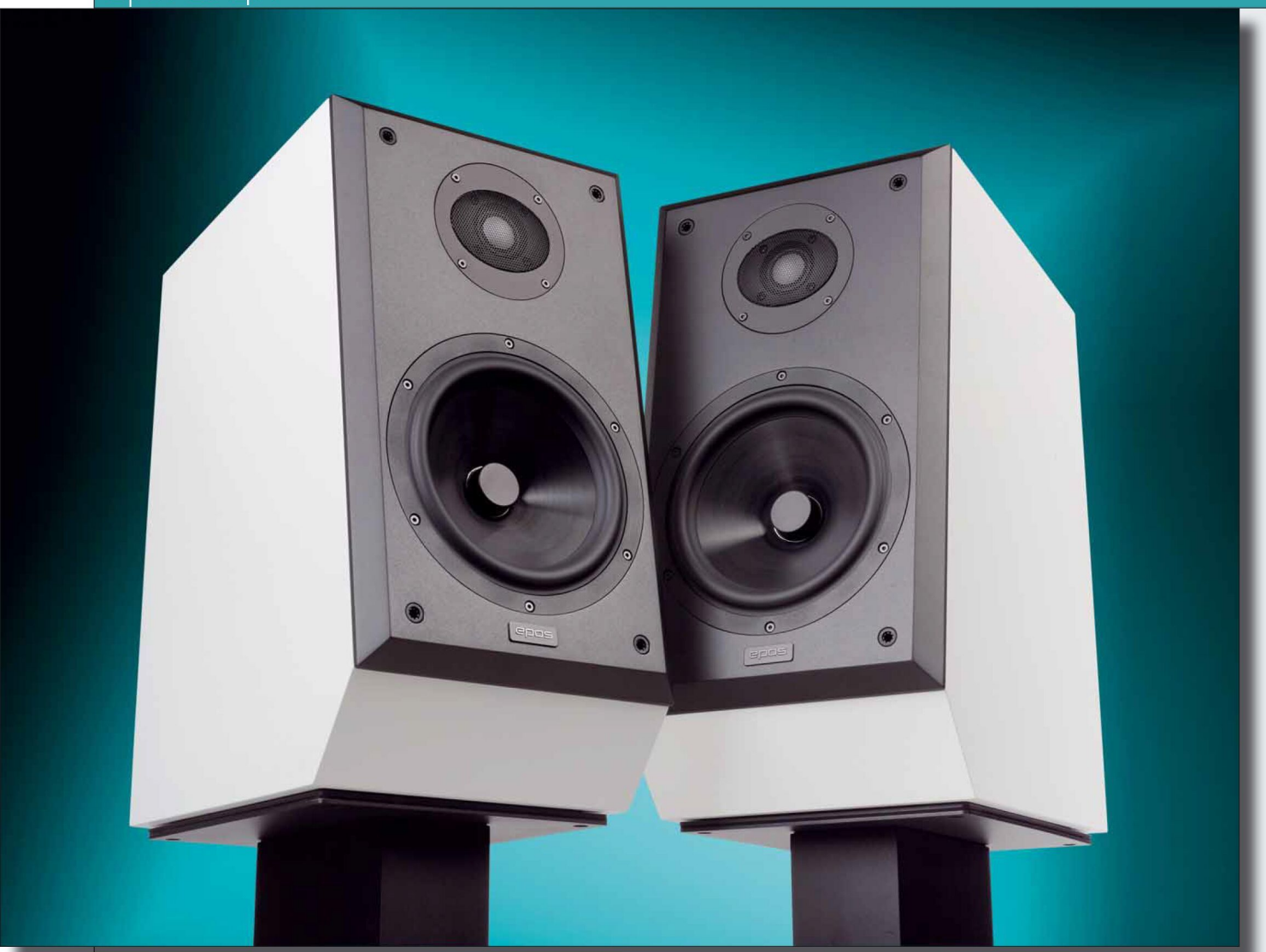
The developer himself took the Epos measurements exceptionally, and I can guarantee their authenticity. The on-axis frequency response is linear, with a very slight downward trend - perfect. So is the omnidirectional response, which reveals a very even drop in off-axis sound pressure. Efficiency is around 87 decibels, and the impedance response shows the two non-linearized bass reflex "humps" and nicely even six-ohm behavior. The distortion level is decidedly low, and there is no noticeable reverberation.

that with ease. They convey the gnarly dirtiness of what is offered credibly, including the frequencies massaging the stomach area. It is already noticeable here that the ES14N is entirely free of resonances typical for reflections. The bass hits the notes precisely without anything getting out of hand. This applies to unreasonable SPLs as well as to midnight levels. The integration of the two drivers turned out flawless. Hardly anyone can demonstrate this as well as Nina Simone, whose voice and piano playing on „My Baby Just Cares For Me“ flow perfectly into each other.

The piano strokes have pressure, and the events have rhythm and timing; the early stereo recording sounds just as spectacular as it should. And again: no harshness of the tweeter at all. Flawless!

Holger Barske

Epos ES14N



- Price per pair 4,000 Euro
- Distribution DC Klaassen, Lünen, Germany
- Phone +49 231 9860285
- Internet epos-loudspeakers.com
- Warranty 2 years
- Dimensions (W x H x D) 250 x 491 x 385 mm (with stand 515 mm higher)
- Weight approx. 16 kg (without stands)

lp

Epos ES14N

International 2/23

» The resurrection of the once British cult brand is a small speaker sensation: a highly competent all-round speaker who can impress emotionally and with its precision.

The Perfect Foundation

Wait, wait – haven't we had this one before? Isn't this a Transrotor Massimo, which has been on the minds of all those who cherish turntables of this type for years?

The new 12" tonearm is gimbaled by ball bearings. The pin on the side of the arm shaft is used for anti-skating adjustment

Not quite. The aforementioned original Massimo still has a position in the lineup of the Bergisch Gladbach turntable and tonearm producer. Still, it costs over EUR 11,000, which is probably a bit hefty for the budget of most potential suitors. As beautiful as the Transrotor-typical highly polished aluminum look may be, as much as the considerable inert masses may give the turntable peace and quiet.

The Massimo Nero is – as the name suggests – black, and it is a somewhat simpler design than its big brother, and, therefore, considerably cheaper: It starts at 4,300 EUR (without tonearm and cartridge), and that's quite a different ballgame. Speaking of tonearms: There's news to report there, too, which has also had an immediate physical impact on our test turntable: the brand-new TRA Studio 12" is here. And you're right to suspect it's the twelve-inch variant of the tried-and-tested "TRA Studio 9". More on that later.

The device can optionally be operated with a second motor, which can be placed to the right of the base

History

You probably realize why the Massimo models look the way they do: They are ultimately Transrotor's interpretation of the classic Micro Seiki RX-1500 dating back to the late seventies. With the appearance of the TechDAS Air Force III from the same house, the design has experienced a veritable revival, and it is not surprising that various manufacturers have implemented their ideas of the theme. This means in detail that you take a compact square drive base plate that only slightly overhangs the platter and mount solid metal cylinders on all four corners, to which tonearm arms can be attached highly flexibly – a maximum of four of them. This solution opens up completely new possibilities for people with a whole range of tonearms and cartridges. I say this as someone who uses such an Air Force III with four tonearms on a daily basis. Here and there, belt drive is the order of the day - at Transrotor anyway, nothing else has been built in the company's long history but turntables driven by one or more thin rubber belts.

Choice of materials

Let's move on to the "Nero" chapter. This is due to the choice of the frame and plate material: POM, polyoxymethylene, also known as "Delrin." This plastic has long since overtaken acrylic as the favorite synthetic material for manufacturing turntables and offers perfect damping behavior, high dimensional stability, and excellent machinability for these applications. And although POM is also available in other colors, "we" use it practically exclusively in black.

Teammates

Phono preamplifier:
Clearaudio Balance Reference

Cartridges:
Miyajima Carbon
Audio Technica AT-5V

Preamplifier:
NEM PRA-5

Active crossover:
JBL 5235

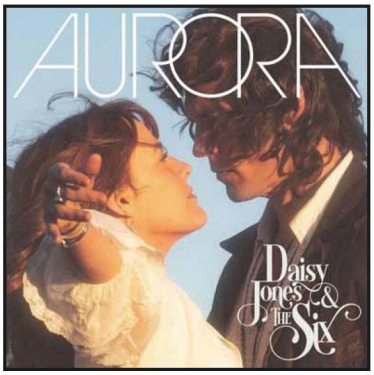
Power amplifiers:
Pure Dynamics Class-A Monos
Yamaha P-2200

Loudspeaker:
JBL 4355

Competitors

Turntables:
TechDAS Air Force III / Reed 3p

A finely polished axle, including a ceramic ball, is revealed under the TMD bearing block



Daisy Jones And the Six – Aurora

What we played

Daisy Jones And the Six
Aurora

The Soul Of Ben Webster

Esbjörn Svensson
Solo

Wishbone Ash
Coat Of Arms

At 14 grams, the TRA Studio 12" lands in a fairly universal weight class

A stainless steel counterweight, which can be equipped with an additional weight if required, is responsible for the tracking force

Construction

The four-centimeter-thick drive base rests on four height-adjustable stainless-steel feet, and silicone rings decouple it from the base. A generously sized threaded rod serves as a mount and forms the basis for screwing the arm bases together. This is a two-centimeter thick POM plate that is clamped immovably via a countersunk nut. A screwed stainless steel lid forms the upper end. The design is highly flexible – if only because you can adjust the mounting distance of the tonearm simply by pivoting the base. If I weren't already blessed with a turntable in this style, I would shortlist the Massimo Nero because making bases for even the most outlandish tonearm designs is nice and easy.

Transrotor's famous TMD bearing is bolted in the center of the base. We can remember: This is a two-piece construction that sits on a shared axle. The coupling between the drive and output sides is realized exclusively via a magnetic coupling, set just "soft" enough to filter out any remaining vibrations from the motor. The imposing platter is slipped over the bearing block, which ensures a nice low center of gravity. In typical Transrotor fashion, the motor is driven by a seamless round belt on the outside of the lower part of the bearing. The motor is located to the left of the drive. The decently heavy "can" contains a powerful synchronous motor fed by the external control unit "Konstant eins."
The latter provides the finely processed sinusoidal oscillations that get the motor going. The speed can be finely adjusted separately for 33 and 45 revolutions. A stroboscope disk is included, and the Massimo Nero's tool and accessory equipment leaves nothing to be desired.

The arm bases are locked with a recessed screw connection. The lid then only serves as a cover

The tonearm

The TRA Studio 12" is the extended version of the "small" Transrotor tonearm. At EUR 4350, it's not exactly a cheap treat, which at least briefly raises an eyebrow when viewed in relation to the mighty turntable. With an effective mass of 14 grams, the new one is not yet one of the weighty arms, which ensures compatibility with a wide range of cartridges. Its construction is similar to its big brother in many respects and has only been slimmed down here and there: The counterweight design got somewhat simpler but is still adjustable with additional weights according to the cartridge. The tonearm tube is now one-piece, and the van den Hul internal wiring is a trifle more austere.
Regarding flexibility and handling, the arm is a delight; of course, it allows for azimuth (the headshell is rotatable) and VTA adjustment (clamped shaft, fine adjustment using two screw-in set screws). In addition, a magnetic anti-skating and a connection cable are firmly connected to the arm - WBT connector included. An adjustment template is included in the form of a simple but functional cardboard version, as well as a gauge for adjusting azimuth and VTA.

Our test unit came with a pre-assembled Transrotor Figaro MC that we have known and appreciated since 2015. The individual unit costs EUR 2500, but experience has shown that attractive package prices are feasible when purchasing a package consisting of a turntable, arm, and cartridge.

Could excite us once again: The Transrotor Figaro

The platter speed is selected with the huge lid of the motor control unit

The screw on the lift cantilever locks the arm in the idle position

Sound

Okay. Maybe I was wrong. Perhaps the album for the series "Daisy Jones And the Six" doesn't sound as soft as I claimed in the review at the back of the issue. This one, in fact, goes seriously forward and presents itself with a bone-dry low end, where there can be no question of a lack of substance – on the contrary. With the standard 100 ohm termination, the whole thing is still a bit too mellow at the top end; 470 ohms provide the necessary transparency here. Whatever component it may be due to – it sounds open, fast, and powerful. The two voices are exactly where I saw them on the screen unless the effects machinery lets them waft freely through the room. You can hear quite distinctly how the Figaro is slowly grooving in. Its imaging becomes more and more stable, the center more pronounced, and it sounds very nice and crisp.

Fancy a bit of jazz? We listen to "The Soul Of Ben Webster" and sink into the romantic playing of the tenor saxophonist. His playing has radiance and force, and the accompanying team – above all, Harold Ashby - follows the intensity perfectly. The power is there, the expression, the emotion too, all finely separated from each other. The Transrotor combination does an excellent job. Of course, I bolted the Figaro onto the Air Force at one point. Interestingly, the differences were not very large. On the Japanese model and under the Reed 1X's headshell, the entire setup seems even more colorful and blessed with more air. Still, the tonal and dynamic relationship is closer than what differentiates the two turntables. So I return to the Transrotor with peace of mind and indulge with considerable enjoyment in the still technically excellent, straightforward rock of Wishbone Ash, which sounds perfectly tidy, almost audiophile, over this combo. Great turntable!

Holger Barske

Transrotor Massimo Nero TMD / TRA Studio 12"

· Price	4,300 / 4,350 / 2,500 Euro
· Distribution	Räke HiFi, Bergisch Gladbach, Germany
· Phone	+49 2202 31046
· Internet	transrotor.de
· Warranty	2 years
· Dimensions (W x H x D)	570 x 190 x 360 mm
· Weight	approx. 20 kg

lp

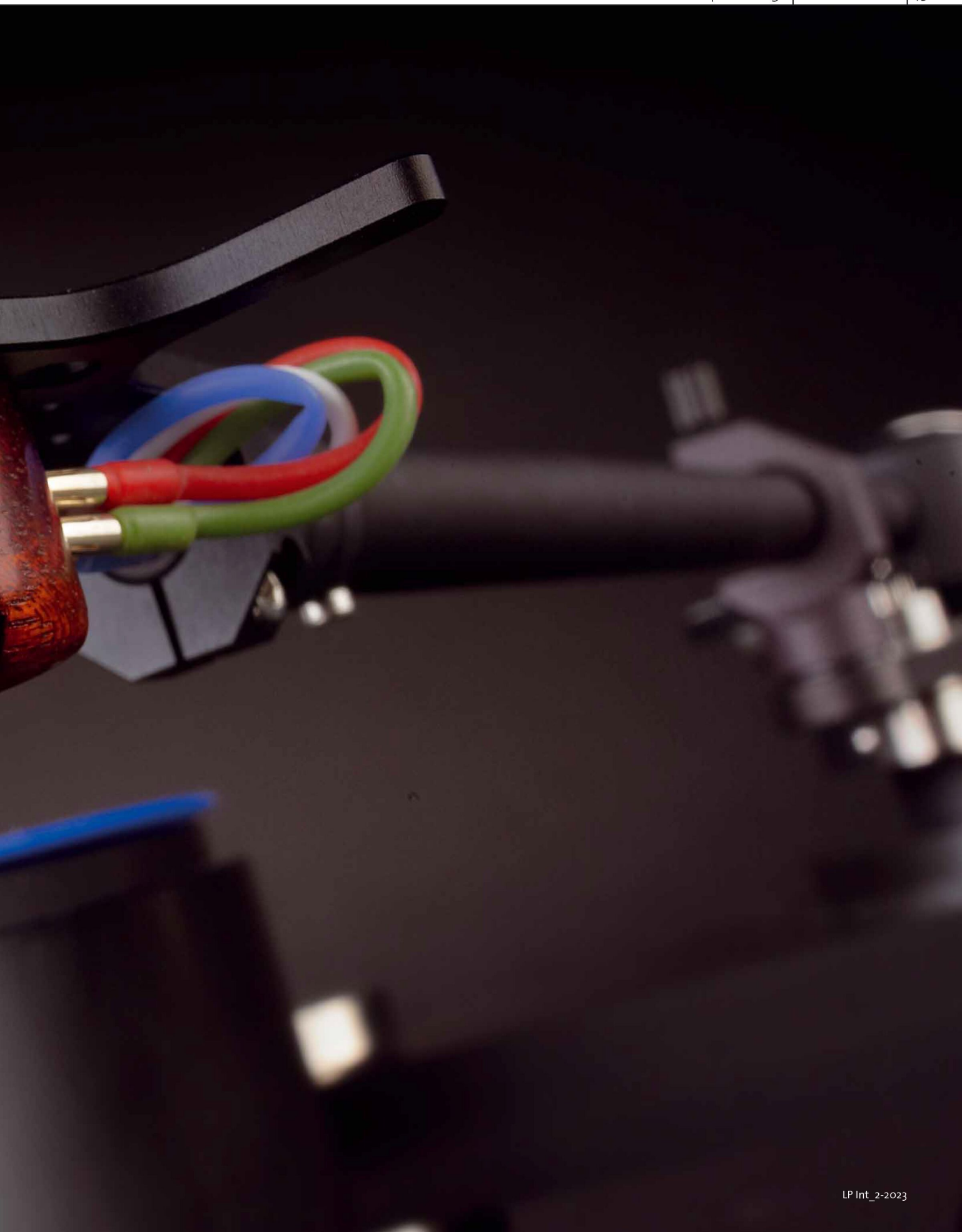
Transrotor Massimo Nero TMD / TRA Studio 12"

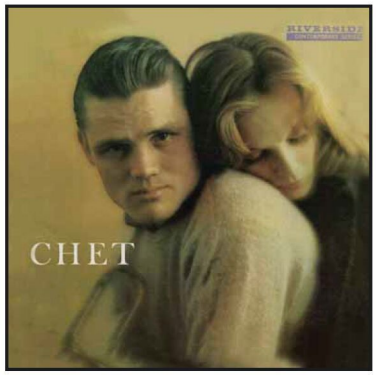
International 2/23

» Transrotor's multi-talented player proves to be perfect for users with a larger vinyl playing style, as well as highly capable in terms of sound: powerful and well-contoured in the bass, with stable spatial imaging and fine high-frequency differentiation.

Crosswise

Cartridges from the Japanese manufacturer Miyajima Labs always sound somewhat special. They fascinate the listener with their delightfully impetuous nature. High-tech has made its way into the brand-new Carbon model – will this have any effect on the sound character?





Chet Baker – Chet

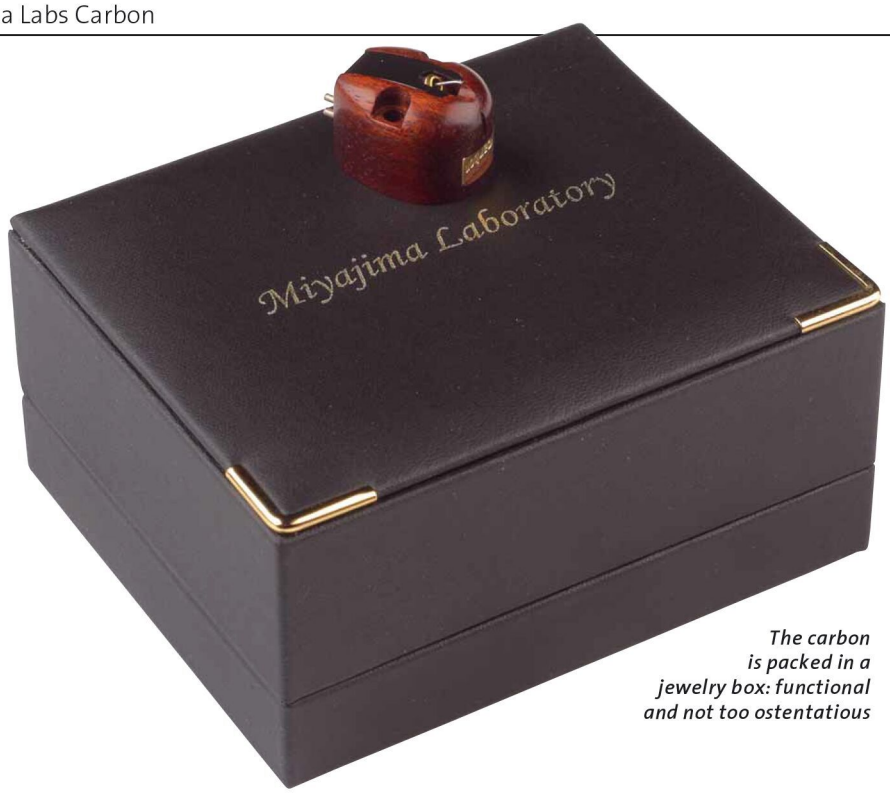
What we played

Chet Baker
Chet

Emma Ruth Rundle
Engine Of Hell

Esbjörn Svensson
Solo

Kosmodrom
Gravitationsnarkose



The carbon is packed in a jewelry box: functional and not too ostentatious

Exterior

Information on Miyajima's gems is not easy to come by, and the sparse facts available on the brand-new „Carbon" model are no exception. One thing is certain: it costs EUR 3400 and is immediately recognizable as a Miyajima model, if only because of the rounded shape of the wooden body that Noriyuki Miyajima uses in slightly varying forms on all of his cartridges. In the case of the new Carbon, it has been given a very organic shape without a mounting flange. As a result, the mounting screws protrude through the entire system body, which means they have to be fairly long. This is not a problem in practice, however, because four pairs of gold-plated mounting bolts with carefully graduated lengths are included. In addition, there is a pair of fastening nuts that you should take good care of - they are particularly small in terms of outer diameter, so that replacements are not likely to be available everywhere. And while we're at it: I find the matching included ceramic cross screwdriver very well done.

The aluminum stylus cantilever has been filled with carbon nanotubes for stiffness

The generator concept

The Carbon is a low-output MC cartridge, but the operating principle of its generator is quite different from what is done elsewhere. At Miyajima, it's called the „Cross Ring Principle" and is used on all of the manufacturer's cartridges. In classic designs, a tensioning thread at the rear pulls the stylus cantilever and voice coil former unit against the rear-mounted damper. The tension thread was a thorn in

Among the accessories, the screwdriver with ceramic blade stands out in particular

Miyajima's side because it presents two potential problems: its tension can change over time, altering the mechanical parameters of the suspension. It also prevents the voice coil former from tilting at the desirable point when deflected by the stylus cantilever, which would be right at its center. With Miyajima now, there is no tension thread. The rubber damper sits in front of the voice coil former, not behind it, so it has to be pushed into position rather than pulled. This is done by a fine pin at the end of a screw that protrudes into the voice coil former from behind and meets the stylus cantilever precisely in the middle. The voice coil former is thus deflected accurately around its center, which makes a special geometry of the winding possible: namely, a cross-shaped pattern. The significantly increased symmetry compared to the classic arrangement reduces distortion, and the elimination of the tensioning thread ensures long-term stability. In addition, the manufacturer was thus able to dispense with a metal bobbin and winds its coils on a much lighter synthetic resin core, thus avoiding hysteresis distortions. This arrangement works excellently, Miyajima holds a patent on it.

Nano technology

The above applies to all Miyajima MCs, but what makes the carbon so special? The eponymous special feature is located at the front end in the form of the stylus cantilever. In this case, it is basically a quite thin aluminum version, which we already know

The body of the Carbon is made of exotic satiné wood

Teammates

Turntable:
TechDAS Air Force III / Reed 1X

Phono preamplifier:
Clearaudio Balance Reference
BMC MCCI Signature ULN
DIY mit Röhren

MC transformer:
Sculpture A Silver Step-Up

Preamplifier:
NEM PRA-5

Active crossover:
JBL 5235

Power amplifier::
Krell KSA-i400
Yamaha P-2200

Loudspeaker:
JBL 4355

Competitors

Cartridges:
Transrotor Figaro
DS Audio DS003

When it comes to packaging, Miyajima Labs sticks to the usual standard and strives for a pretty jewelry box

from the proven Takumi model. For the carbon, however, Miyajima wanted a stiffer stylus cantilever. He achieved this by filling the aluminum carrier with carbon nanotubes. They provide incredible stability and allow for a significantly improved tracking at high frequencies. To do justice to all this, a naked diamond with line contact cut is mounted at the end.

The exotic Satiné wood is used for the first time in the housing and influences the sound of the cartridge in its very own way.

Parameters

Miyajima MCs are quite stiff models across the board. The manufacturer specifies a needle compliance of only 9 µm/mN. In terms of tonearm, it can be a bit heavier, longer models are usually at an advantage. 16 Ohm internal resistance is common for Miyajima, and 0.21 mV output voltage – unfortunately we don't know for which speed the value is specified. However, it won't be very loud. The recommended contact force is 23 millinewtons. The installation of the carbon proves to be not quite trivial, because there is nowhere a straight side edge, by which one could judge the offset easily. The stylus cantilever is also rather well hidden underneath the body, so it's only of limited use as a reference. Once again, I'm glad to have a free spot under a reed twelve-inch arm; the 1X proves to be an ideally suited playing partner for the carbon.

Sound

It performs excellently with a 1:20 transformer, and with my Sculpture A Silver Step-Up it sounds very smooth and, above all, hum-free. However, the Carbon was at its best when I connected it to the BMC Signature ULN, which is the subject of another article in this issue. The combination proved to be extremely transparent and natural, also due to the spectacularly low self-noise of the phono preamplifier. I can't offer you the direct sonic comparison to other Miyajima cartridges, I'll have to dig into my collection of memories of my encounters. And I dare to say that the Carbon is quite unique in terms of high-frequency resolution: what it extracts, for example, in terms of subtleties from the trumpet playing of early Chet Baker, is great art. In the bass, it shows itself to be unwaveringly firm; here, too, precision is very much to the fore. Simple analytics? Not in the least. Rather an obsessive stickler for detail, who can vary the voice of Emma Ruth Rundle in a multitude of minute nuances, but never loses his knack for coherence.

Holger Barske

Miyajima Carbon

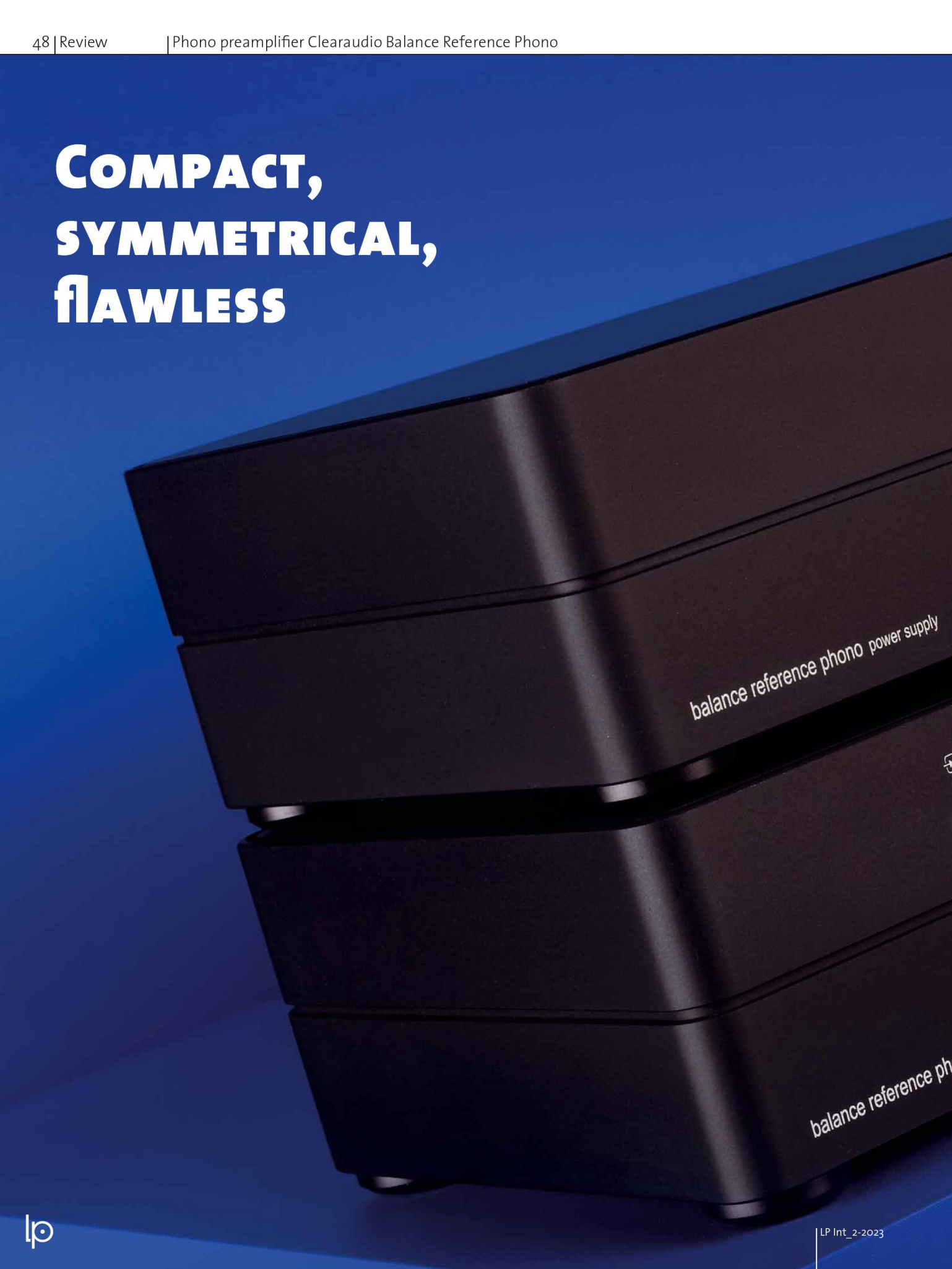
· Price	3,400 Euro
· Distribution	WOD Audio, Nidderau, Germany
· Phone	+49 6187 900077
· Internet	wodaudio.com
· Warranty	2 years

lp Miyajima Carbon

International 2/23

» The Carbon is a fantastic cartridge with tremendous attention to sonic detail. It acts very stable and agile over the entire frequency range and is undoubtedly one of the best you can buy in this respect at the moment.

Compact, symmetrical, flawless



With Clearaudio's new phono preamplifier, little things are especially important. This not only concerns the technology, but also grammatical details.

Fully balanced, two inputs and suitable for direct power amp connection: the Balance Reference Phono

The good old Sub-D connector from the computer stone age transmits the supply voltages here

After all, there used to be a „Balanced Reference Phono“ from Clearaudio. The only formal difference between this and the brand-new machine without the „d“ is the „d“ at the end of the term „Balanced“, which stands for „symmetrical“. Such a small consonant is not much on paper, but in this case it makes a difference of about 20 years. However, the ideas on both ends are entirely comparable: A universal, uncompromising phono preamplifier was required, in which the separation between the amplifier and power supply had just as high a priority as the separation between the two channels.

At the beginning of the millennium, it came down to a four-part ensemble in which the two completely monophonic amplifiers were screwed together via aluminum cylinders, just like the two power supplies, which were just as consistently channel-separated. The amplification was adjustable from the outside via separate rotary switches. This was not very convenient, but it was useful as an uncompromising volume control in case you wanted to connect the unit directly to a power amplifier. The new model (without the „d“) also features something comparable.

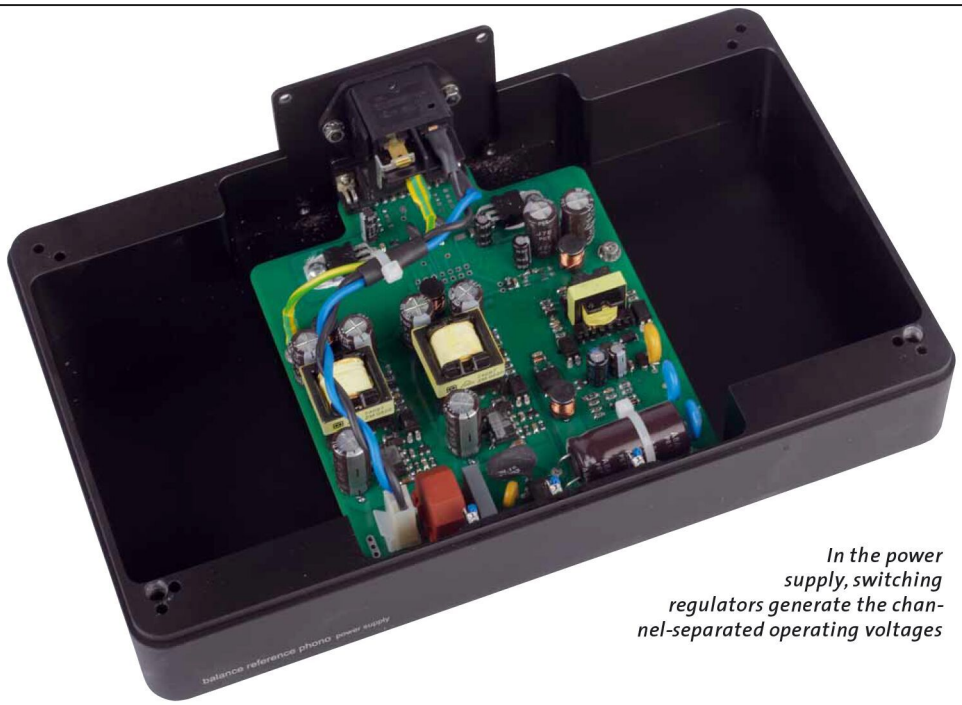
Exterior

There is no doubt that the Erlangen-based analog supplier has an impressively efficient in-house production, which is, once again, unmistakable with the Balance Reference Phono. The metalwork and finish of the two-piece ensemble are exquisite; in our case, the matte black finish could hardly be more perfectly applied to a piece of metal. The finely curved side edges are now part of the unmistakable company look. In any case, the outer appearance is absolutely appropriate for the 7900 EUR price tag. This also applies to the included remote control, which can be used to switch the device on and off, vary the gain, switch between the two inputs and mute it.

Connectivity

The Balance Reference Phono has two identical input sections. Each of them features both RCA and XLR connectors and can handle MM and MC cartridges in both cases. There are also separate binding posts for the ground connection. On the output side, there are also RCA and XLR connectors, and the unit is designed to be completely symmetrical.

The power supply cable is permanently connected to the amplifier, and about



In the power supply, switching regulators generate the channel-separated operating voltages

one and a half meters further on, there's a multi-pin connector that can be secured with two screws, and has a counterpart on the back of the power supply. There's also the mains input socket, which is equipped with a power switch. Three tiny and fortunately brightness-adjustable blue LEDs in the notch separating the two halves of the case signal that the device is ready for use; only the middle one stays on in standby mode. The device also has two headphone jacks. One of the jacks on the front is assigned to the corresponding input, which, if I may say so, makes little sense: Why would I want to reconnect the headphones when I switch the input?

In headphone mode, the unit mutes the main outputs, which makes sense, because it doesn't need a signal from the speakers in headphone mode.

Operation

While there is nothing else to operate on the power supply – if you like, you can hide the supply part – everything crucial happens on the amplifier part. Two buttons are used to switch between the two inputs, the active side is acknowledged by a LED in the respective button. The device is put into standby mode by pressing either these two buttons or the one in the center of the rotary wheel for a few seconds. The machine acknowledges this with a permanent light on both LEDs, which is somewhat confusing. Said rotary wheel has knobs for a secure grip, it is used to adjust the gain. In case you want to leave the volume adjustment to a separate preamp (or integrated amplifier), the level control should be turned all the way up. The Balance Reference

The device's connection field is generously equipped due to the numerous possibilities

Teammates

Turntables:
Clearaudio Master Innovation
Transrotor modified

Tonearms:
Clearaudio TT-2
Clearaudio Universal
Hadcock GH-242

Cartridges:
Benz ACE L
Skyanalog G-1
Lyra Etna

Preamplifier:
NEM PRA-5

Active crossover:
JBL 5235

Power amplifiers:
Pure Dynamics Class-A Monos
Yamaha P-2200

Loudspeaker:
JBL 4355

Competitors

Phono preamplifiers:
Manunta Evo Phono 3
Clearaudio Absolute Phono Inside

Cymande – S/T

What we played

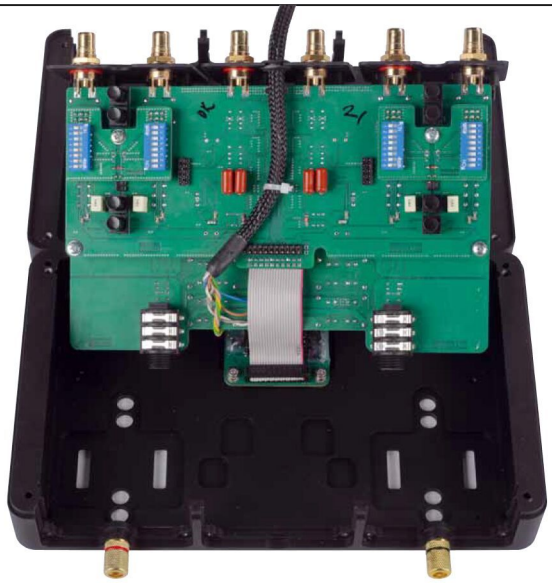
Cymande
S/T

Nightmares On Wax
In A Space Outta Sound

Iggy Pop
Every Loser

Mono
Heaven Vol. 1

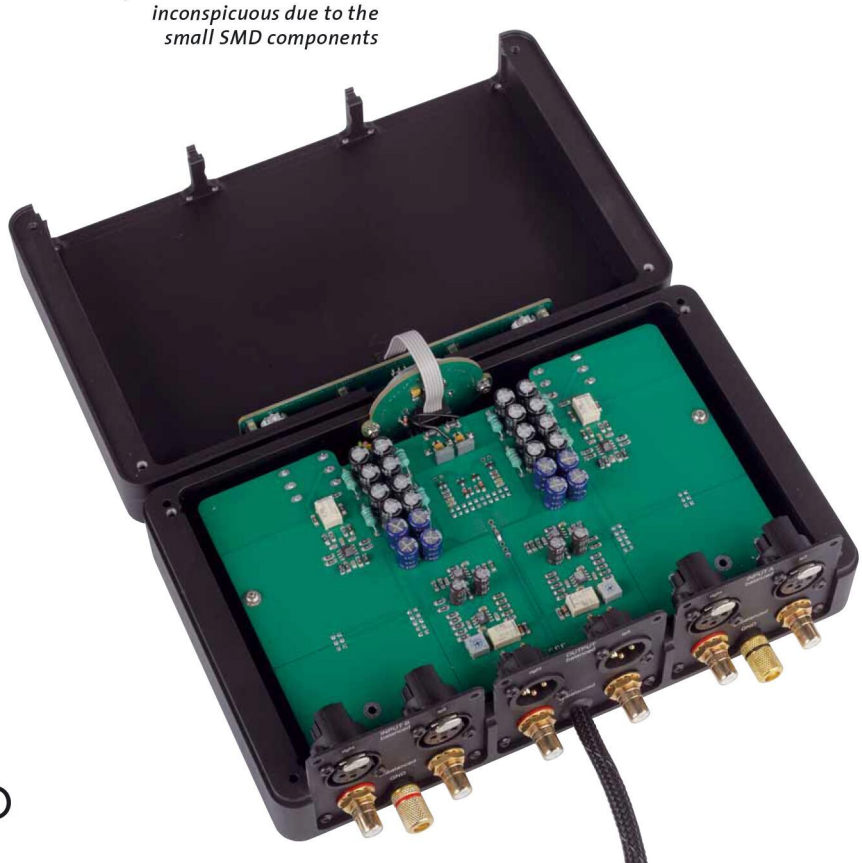
Phono will then deliver a gain of 45 decibels in MM mode and 63 decibels in MC mode, both practical values. For direct connection to a power amplifier, these gains may be a little skimpy. Make sure beforehand that they will allow you to fully drive your power amplifier in conjunction with your pickup of choice. Example: a rather quiet MC with a nominal output voltage of 0.25 millivolts would deliver just over 350 millivolts at the output when the output is turned up to full level - that's not very much. A cartridge with 0.5 millivolts would deliver 700 millivolts at the output, which is not exactly abundant, either.
Apart from that, the level control, which is realized by means of relays and fixed resistors, works excellently. It runs very channel-identical, does not crackle, and the 32 steps are completely sufficient in practice. In addition, the volume can be lowered so far that there is really silence.
The parameterization of the device for the cartridges to be connected is done on the bottom of the device. Each channel has a separate block of four pushbuttons and an eight-pin „mouse piano" for adjustment.



The setup with separate switch boards is a squeaky-clean affair

The round pushbuttons select between MM and MC operation, activate the subsonic filter, allow mono operation, and switch between balanced and unbalanced input. Two DIP switches allow the adjustment of the input capacitance in MM mode, the other six are responsible for the input impedance at MC connection. Here's values between 50 ohm and 100 kiloohm, and parallel connections are possible. In practice this amounts to a multitude of possible combinations - you'll find something suitable for every MC. I operate the device lying on my back when I search the settings for a new cartridge, this makes the process much more comfortable..

The amplifier circuit itself is rather inconspicuous due to the small SMD components



Technology

Inside the two aluminum housings milled from the solid, things are substantial and very modern: The power supply contains three compact switching regulators that supply the operating voltages for the amplifier sections in a neatly channel-separated manner, and a separate „switch" operates the control functions. That's how it's done nowadays.
This can also be said about the construction of the amplifier section. There are three layers of circuit boards, all of which are equipped with modern SMD components. It's impossible to tell exactly what kind of eight-legged components are at work here, as the manufacturer has neatly removed all type designations. Apparent-

THE ART OF CONNECTION

WBT

WBT-0120 **WBT-0210**

The parameterization of the device is done on the bottom side

ly, there's thorough power supply voltage filtering, otherwise there's nothing emphatically „audiophile" to be seen. It looks like a competent, technically motivated, straightforward symmetrical design, and the impressive metrological qualities of the device prove the approach right.

Sound

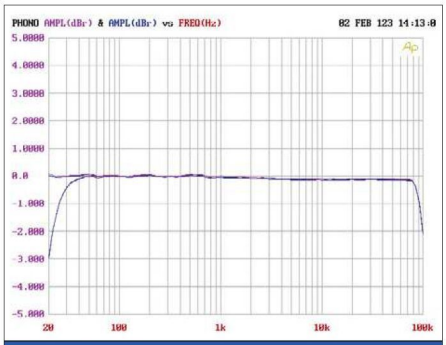
In practice, the Balance Reference Phono is absolutely unproblematic. Interference problems are not to be found even when the amplifier and power supply are placed on top of each other, which is of course not the recommended procedure.

Sound-wise, the device is decidedly straightforward and transparent: If you want to know how your cartridge will sound apart from any synergy effects with the phono preamplifier, this is the right choice. I got a first impression of the Balance Reference Phono in connection with the indestructible Benz ACE L, guided by a Hadcock tonearm, listening via Sendy Audio headphones. Which worked quite splendidly and prompted me to switch the Benz's matching to 500 ohms – I normally favor less termination impedance with this cartridge. But it gave the whole experience a very agile and smooth quality. The wonderful and freshly re-released self-titled album of the British funk band „Cymande" was just the thing to get a first impression. And it was excellent: The set managed the casual 70s vibes absolutely convincingly. In the bass, it sounded warm yet light and wonderfully nuanced. The impression remained when I connected the Clearaudio duo including headphones to the Clearaudio Master Innovation, on which a Clearaudio Universal leads the excellent Skyanalog G-1. It's extremely „fluffy", light-footed and unstrained, with a bit more emphasis and bite than before. The switch to the always inspiring Lyra Etna on Clearaudio TT-2 provided an even more uninhibited and heated reproduction, always on the tonally accurate line and making changes to the setup immediately apparent.

Finally, the Reed 1X should show the difference between balanced and unbalanced operation - here I have two suitable and otherwise identical phono cables available. The decision was not difficult: symmetry is the preferred means: larger spaces, more air, and definitely even better resolution – this is how record playback is done at the top level.

Holger Barske

The remote control is not inferior to the devices in terms of material use



Measurements

Lab commentary

The Balance Reference Phono passed the laboratory test with flying colors. The frequency response chart reveals perfect compliance with the RIAA curve, the subsonic filter kicks in at 20 hertz. In MM mode, with the level control turned all the way up, the gain is 46 decibels, the signal-to-noise ratio at 5 millivolts at the input is 80 decibels(A), the channel separation is 78 decibels, and the distortion factor at one kilohertz is 0.029 percent. In MC mode, there's 63 decibels of maximum gain, 59 decibels(A) of signal-to-noise ratio, 56 decibels of channel separation, and 0.12 percent distortion, all at 0.5 millivolts of input voltage. The unit's power consumption is a constant 10.7 watts.

Clearaudio Balance Reference Phono

· Price	7,900 Euro
· Distribution	Clearaudio, Erlangen, Germany
· Phone	+49 9131 40300100
· Internet	clearaudio.de
· Warranty	2 years
· Dimensions (W x H x D)	240 x 78 x 145 mm (per unit)
· Weight	approx. 2,9 / 2,2 kg

lp

Clearaudio Balance Reference Phono

International 2/23

» Clearaudio's Balance Reference easily finds its place among the top phono-pres on the market. It sounds decidedly transparent and nimble, and it is compatible with a wide range of cartridges.

"H" IS JUST A NUMBER

In retrospect, the venture doesn't seem all that daunting to me: develop a turntable, get it ready for series production, and build and market it as a one-person business.

Nice gimmick: the speed indicator and an extraordinary „magnetic“ switch

Sure, it‘s easy for me to talk: But after thoroughly examining the Luphonic H2, I dare say it will be straight sailing without any problems. That‘s because company founder Thomas Luh has realistic views of the turntable market, doesn‘t (yet) have to make a living from it, and has built a superb product about whose success on the market you don‘t have to worry at all.

Luphonic resides in Linden, Hesse, which borders the perhaps better-known city of Giessen in the north. The company‘s beginnings were not easy because it was founded one month before the onset of the Corona crisis.

The design language of the Luphonic H2 is refreshingly unusual

However, it is possibly precisely the delays caused by it that have ensured that the manufacturer's three products have matured into a fantastic all-around quality by the time they enter the market. Currently, there are two turntable models and one tonearm. We deal with the larger turntable H2, and the K2 tonearm is integral to the package. Current list price: just under EUR 3,000.

The H2 is visually quite different from the usual board-and-box designs. This is thanks to the reduced size of the chassis, which looks like a large „H." Its „crossbeam" houses the platter bearings and motor, while the two legs carry four height-adjustable spikes at their ends. The developer explains the design with the best possible acoustic decoupling between the platter bearing and the tonearm.

Teammates

Phono preamplifier:
Clearaudio Balance Reference

Cartridges:
Denon DL-103
Skyanalog Reference
Audio Technica AT-5V

Preamplifier:
NEM PRA-5

Active crossover:
JBL 5235

Power amplifiers:
Pure Dynamics Class-A Monos
Yamaha P-2200

Loudspeaker:
JBL 4355

Competitors

Turntable:
TechDAS Air Force III / Reed 3p

Wishbone Ash – Coat Of Arms

What we played

Wishbone Ash
Coat Of Arms

Ella Fitzgerald
Ella Swings Lightly

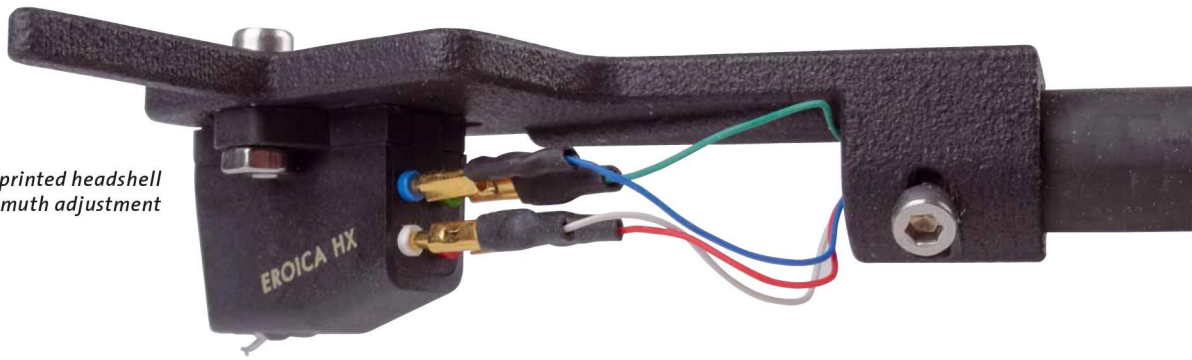
Esbjörn Svensson
Solo

My Sleeping Karma
Tri

The precisely horizontal placement with the finely adjustable cones works flawlessly. The slightly rounded „tips“ also save fiddling with spike coasters and allow direct contact with more sensitive surfaces. The chassis is a three-layer sandwich construction, which is also one of the main differences from the smaller, single-layer H1. A mat of highly dampening cellular rubber between two layers of hard solid surface material about a centimeter thick absorbs any vibrations. This includes vibrations via the substructure. The solid surface material does not usually look as pretty and shiny as it does here and only acquires its flawless appearance after a seven-stage grinding and polishing process.
The platter weighs just under two kilograms and is made of the same material but is coated in matte black. Tapping the plate reveals a pleasingly low tendency to ring. The impression is even stronger when the platter rests on the metal subplatter. The contact surface between the two consists of only a narrow ridge at the edge of the subplate, which apparently works well. If you think you‘ve seen a similar solution and a few other ideas realized here, at least in principle, at a particular British turntable manufacturer, you‘re probably not mistaken. In this case, the design allows operation without a turntable mat (which the manufacturer recommends), which should not prevent you from experimenting. By the way, there is also an interesting mat from Luphonic.
The disk bearing follows classic principles: A steel axle protrudes from the bottom of the disk and is inserted in a pre-lubricated brass bushing. A small ceramic ball takes care of the vertical forces. The bearing axle is not particularly thick, which keeps the frictional surfaces and, thus, the noise level low.

A flat rubber belt drives the relatively small sub-disc. In turn, a synchronous motor, decoupled and suspended in the top layer of the frame, drives the belt. The motor rotates rather slowly, which again helps to re-

The tonearm is a pragmatic and perfectly functioning design



The 3D-printed headshell allows for azimuth adjustment

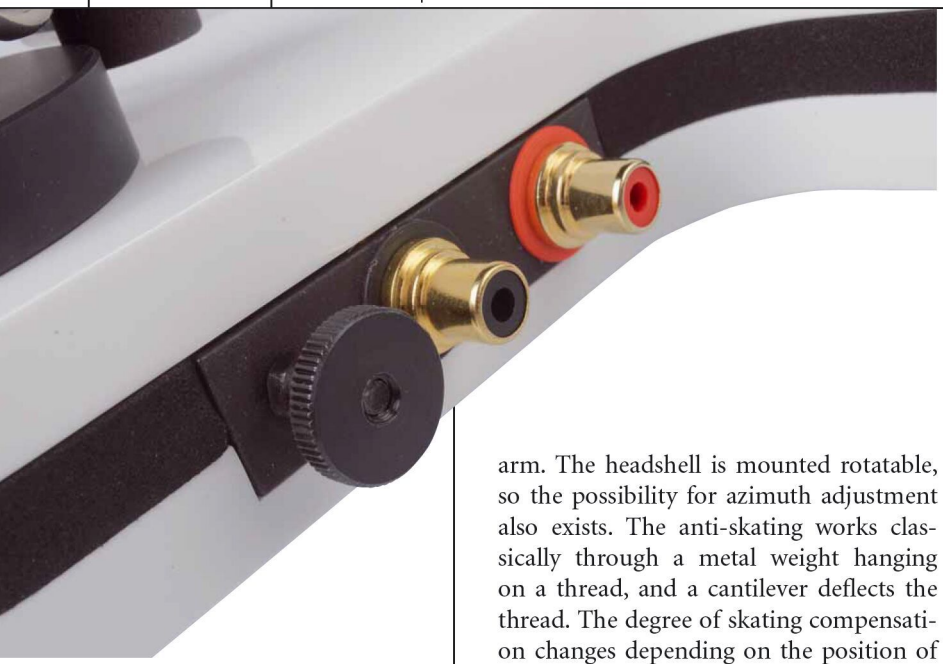
duce noise. A microcontroller controls the motor. It ensures quartz-stable control, but one can still finely adjust the platter speed. This compensates for aging phenomena such as a belt that becomes thinner over the years.

Thomas Luh has come up with something special when it comes to operating the device: A round puck is placed on the front left leg of the frame, which starts the motor. Depending on which side of the puck is on top, 33 or 45 revolutions are activated – very pretty. A seven-segment display, invisible when switched off, informs about the operating status and complains when the puck is not in the right place. A well-done gimmick that works excellently in practice.

The scope of delivery of the device includes the K2 tonearm. The nine-inch unit, also available separately for EUR 990, is a gratifyingly pragmatic, gimbal-mounted device. Geometrically, it follows common standards, evident from its mounting distance of 222 millimeters. A straight carbon fiber tube is used as the arm bar, and a 3D-printed headshell sits at the front end. It is made of very lightweight polyamide, laced with ultra-fine glass balloons. The manufacturer states the tonearm's effective mass to be approximately ten grams, and cartridges weighing five to 14 grams can be installed. An eccentrically drilled counterweight is mounted at the rear end of the arm, which is fixed with a locking screw; the contact force is also adjusted here.

Miniature ball bearings serve as bearings in both dimensions. The whole assembly makes a smooth and backlash-free impression – that's how it should be. The tonearm is adjustable in height. For this purpose, the shaft can be moved up and down after loosening two grub screws at the base of the

The disk axle must still be „married" to the sub-disk during assembly



The connector panel normally disappears under the platter

arm. The headshell is mounted rotatable, so the possibility for azimuth adjustment also exists. The anti-skating works classically through a metal weight hanging on a thread, and a cantilever deflects the thread. The degree of skating compensation changes depending on the position of the „beginning of the thread“ on the pin protruding from the bearing housing.
The only thing about this arm that takes some getting used to is the lack of an „armrest.“ This could, in principle, cause the arm to slip off the outside right of the lift bench, but this is probably a rather theoretical problem. Otherwise, the same applies to the drive: an absolutely well-thought-out design that is engineered well in every respect.

The motor is driven by a synchronous motor, flat belt, and subplate

Mounting a rather stiff Denon DL-103 on the relatively light arm at the beginning seemed a bit risky to me at first. However, H2 and K2 immediately dispelled such concerns. The latest studio album of the old warriors from Wishbone Ash was on the plate. And the ruggedly rolling pace of the DL-103 was immediately there; restraint or even nervousness could not have been further away. On the contrary: the team perfectly dissected the two tremendously well-matched guitars, placed the voice beautifully precise in front of it, and the drums had - well: balls.
This is off to a good start, but let‘s try something more „respectable“ in the form of the excellent 45rpm reissue of Ella Fitzgerald‘s „Ella Swings Lightly.“ And gentlemen - she really swings. The distinguished band accompanies Ella‘s unique voice very snappily. Could there be more in the way of vocals? But yes: the spectacular Skyanalog Reference shows where the Japanese classic lacks a bit: in expression, in subtleties. In this combination, the combo soars to top performances: Slightly slimmer than with the Denon, with noticeably more luminosity and color. The Luphonic passes on this character with great naturalness, just like the typical MM sound: With the Audio Technica AT-5V, Esbjörn Svensson‘s late solo work got this confident naturalness characteristic of good MMs. The piano has power and expression, and although the intensity by no means comes close to that of the Skyanalog, that is perfectly okay.
Ah, right, this is a turntable test – I forgot. The Luphonic is a highly suitable base for all such experiments. I could not find any sound-wise limitations of this platform.

Holger Barske

Luphonic H2

· Price	3,000 Euro
· Distribution	Luphonic, Linden, Germany
· Phone	+49 6403 9683907
· Internet	www.luphonic.de
· Warranty	2 years
· Dimensions (W x H x D)	440 x 140 x 360 mm
· Weight	approx. 6.5 kg

lp Luphonic H2

International 2/23

» What a premiere! Luphonic's H2 and K2 form a highly potent basis for cartridges of almost any type and are characterized by a lively, pleasingly neutral character. The unit is also a pleasure to use daily.

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Coming soon:

Line Magnetic LP-33

This is a very nice tube phono stage with lots of references to the old days. It can handle MM and MC cartridges, and we are eager to find out how it sounds.

Audes ST-900

The importance of a low-interference mains supply for the sound of a hi-fi system cannot be overemphasized, especially in this day and age. The Estonian manufacturer Audes has blossomed into a specialist for excellent filter solutions in this regard. In the next issue, we'll be introducing the transformer isolator ST-900.

Next issue LP International September 1, 2023

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